

# The Eyepiece



SW FL Astronomical Society, Inc.  
3236 Forum Blvd #1160  
Fort Myers, FL 33905

## Seahawk Star Parties

Mar 25th  
April 22nd  
May 20th  
Sept 16th  
Oct 14th  
Nov 11th  
Dec 16th

Comet c/2022 e3 (ZFT) image by  
Mike Jensen



**Editor - Mike Jensen**

Hi Everyone! Hopefully you will notice upon first opening of this newsletter that we have a newly updated logo. Unfortunately the only version we had of the old logo was a very small and pixelated version. SWFAS member John Udart created the new logo using some stock art and some great graphic skills! Thanks John! We will soon start incorporating its use in our various communications.

I'm publishing the newsletter a bit early this month as I'm doing

some traveling and won't be in attendance for our regular general membership meeting.

I want to really encourage everyone to get involved in our club. Volunteer an hour or two at an outreach event, help at our observing events in Punta Gorda. Also, we'd love to have some help in the membership area. Someone to help keep track of members, rosters organized, welcome people at the meetings, email new members etc. [Please contact me](#) if you're interested.

**Have you paid your 2023 Membership dues? Only \$25 for great programs, great fellowship, observing and imaging advice and much much more!**

[Click here to pay online!](#)

## March 2023

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## Club Officers & Positions

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## Monthly Meetings

Our monthly meetings are held on the **first Thursday of each month.**  
**The meetings begin at 7:00pm.**

***Each meeting is usually a combined live and Zoom meeting.***

The in person meeting is held at:  
Calusa Nature Center/Planetarium  
3450 Ortiz Ave,  
Fort Myers, FL 33905

Each meeting will have the same  
Zoom link/meeting ID.

Below are the dates for the next six meetings of 2023:

March 2, 2023  
April 6, 2023  
May 4, 2023  
June 1, 2023  
July 6, 2023  
August 3, 2023

Link to join Zoom meeting:  
<https://widener.zoom.us/j/98623448643>

Meeting ID: 986 2344 8643

One tap mobile:  
+13052241968,,98623448643#  
US (or)  
+13126266799,,98623448643#  
US

## Observing Program Dates

Below are the schedules for our Friday public nights at the FSW Observatory (3rd Friday of the month) and the Saturday Solar Observing events (1st Saturday of the month) at county parks.

## FSW Observatory

3-17-23  
4-21-23  
5-19-23

## Solar Observing/Park

3-4-23 / Gilchrist  
4-1-23 / Ponce de Leon  
5-6-23 / Bayshore Live Oak



## President's Report

### Brian Risley - President

As Mike mentioned, we are looking for volunteers to help in many areas.

I hope to get to inventorying the club equipment and then determining what we want to keep and what we want to auction off. This will require some help in documenting and cleaning up/checking out the different scopes and accessories.

We had another good meeting and an excellent presentation. Tom Klein helped get the Zoom presentation and audio working well. Keep in mind that the April meeting will be a live presentation in the planetarium. We will broadcast it on Zoom.

John has been in touch with anyone still owing dues for 2023. We hope the new processes will make the job easier and occur in a shorter time frame.

Unfortunately, I had to back out of STEMtastic this year due to personal reasons. We will try again next year.

The Rotary Park Star Party had a good turnout both from the club members and the public. Unfortunately, dew was a major problem this year. My hair dryer worked overtime! Estimates are in the 100 visitor range. I want to thank all the club members who came out and helped.

### VOLUNTEERS

We need help with

- Star Party planning/coordination (The schedule is set for the year, need people to bring a telescope & talk to the public)
- Public Outreach events and materials (Looking for a co-lead on this as well as people to help set up/man booth)
- Meeting Program planning (Need people to make phone calls/emails and help with PR)
- Membership. Someone to help keep track of members, rosters organized, welcome people at the meetings, email new members etc.

We will be looking to update the club bylaws as there are several things that have evolved over time that need to be officially stated. We are also looking at trying several social events with some based before or after the meetings.

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### GUEST SPEAKER PRESENTATIONS SERIES

We are excited to announce the initiation of the new "SWFAS Guest Speaker Presentations" series of talks. These will cover astronomical science and space exploration along with practical astronomy and astrophotography talks by various subject matter experts. We are lining up prominent scientists and researchers to explain the science and technology behind the exciting discoveries being made in recent years in astronomy.

The following presentations are already scheduled and we will be firming up talks in 2023 on a month-to-month basis.:

March 2, 2023	Dr. Eric Perlman - Florida Tech - Active galactic nuclei (supermassive black holes at the center of galaxies)
April 6, 2023	Dr. Derek Buzasi, Florida Gulf Coast University The Music of the Stars: What it tells us about stars and exoplanets.
May 4, 2023	Michael Corvese - Where Did The Moon Come From?

## March 2, 2023



**Dr. Eric Perlman -  
Florida Tech**

Active galactic nuclei  
Supermassive black holes at the  
center of galaxies.

## The Astronomical League Report



### The Astronomical League

As a member of the Southwest Florida Astronomical Society you are automatically also a member of the Astronomical League, a nationwide affiliation of astronomy clubs. Membership in the AL provides a number of benefits for you including receipt of *The Reflector*, the AL's quarterly newsletter, use of the Book Service, through which you can buy astronomy related books at a 10% discount. You can also participate in the Astronomical League's Observing Clubs. The Observing Clubs offer encouragement and certificates of accomplishment for demonstrating observing skills with a variety of instruments and objects. These include the Messier Club, Binocular Messier Club, the Herschel 400 Club, the Deep Sky Binocular Club, and many others. To learn more about the Astronomical League and its benefits for you, visit <http://www.astroleague.org>

### Reflector Magazine

You should have received an email from the Astronomical League allowing you to download your quarterly digital copy of the *Reflector* magazine on around December 2. You can also directly access copies via the web at <https://www.astroleague.org/reflector>

### Monthly highlight of the Astronomical League Observing Programs

(Article prepared by SWFAS Astronomical League Coordinator John MacLean)

### The Astronomical League Hydrogen-alpha Solar Observing Program

We are currently in Solar Cycle 25 which began in December 2019. Maximum sunspot activity should peak between 2024 and 2026 and we are already seeing enhanced solar activity. This is an excellent time to begin observations of the Sun if you haven't done so already. Observing the sun over the next 2-3 years or so will allow the observer to experience the buildup in solar activity to the maximum of a solar cycle.

The League's Hydrogen-alpha Observing program can be accomplished either visually or by imaging and the use of a hydrogen-alpha scope is required. An instrument

as small as the 40mm Coronado PST is appropriate although double stacking of filters is highly desirable to bring out detail.

To obtain the observing award, submission of three sets of drawings or images is required:

1. A set of 20 or more sketches or images of the whole solar disk during two solar rotations (one rotation is about 30 days.) The main features need to be shown: filaments, plages, flares, and sunspot umbra.
2. The second set consists of detailed sketches or images of the different forms that solar prominences take on the limb of the sun. Examples of 15 different types are shown including various forms of arches, pillars, mounds, etc.
3. The third set consists of detailed sketches or images of individual features on the disk of the chromospheric sun. Six of nine designated features are required including filaments, spicules, flares, plages, etc.

The included overview is quite comprehensive and includes sample drawing submissions.

A recommended Reading List includes:

**Jenkins, J. L., *The Sun and How to Observe It*, Springer-Verlag**

**Jenkins, J. L., *Guidelines for the Observation of Monochromatic Solar Phenomena*, A.L.P.O. downloadable**

**Pugh, P., *Observing the Sun with Coronado Telescopes*, Springer-Verlag**

**MacDonald, L., *How to Observe the Sun Safely*, Springer-Verlag**

### What's Up Doc? Newsletter

For individuals participating in any of the Astronomical League's Observing Programs, a very useful resource is provided by Aaron Clevenson's What's Up Doc monthly Newsletter and Observing Spreadsheet. Access via the following link: What's Up Doc | The Astronomical League ([astroleague.org](http://astroleague.org))

The utility of this resource over others is that it ties the monthly targets available for observing back to specific AL Observing programs so that you can plan effectively what targets to tackle each month to advance within a particular program.





## *The Most Distant Stars In Our Galaxy...*

The Most Distant Stars In Our Galaxy Are Halfway To Andromeda, Say Scientists

[Article from Forbes.com](#)

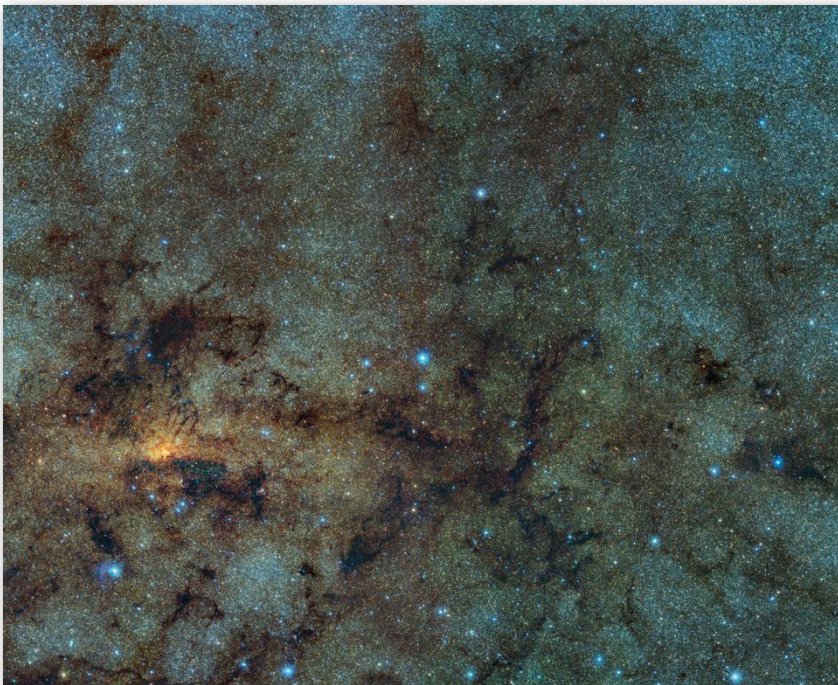
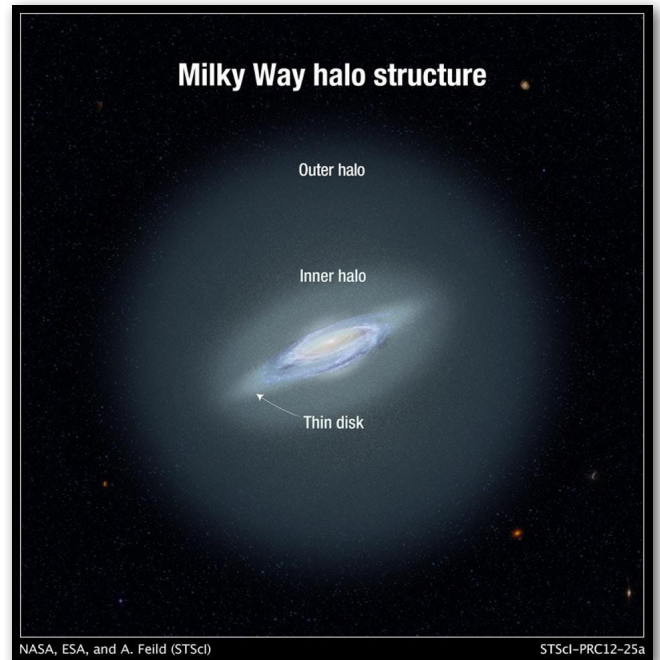
By Jamie Carter Senior Contributor

Have you ever seen the Andromeda galaxy? Go outside after dark this month and look high up in the northeast sky and you'll find the W-shaped constellation of Cassiopeia. Think of its second V-shape as an arrow. It points straight at a fuzzy patch that, under the darkest skies though more likely through binoculars, looks like what it is—a very large and very close galaxy.

Also called M31—and our closest giant neighboring galaxy at just 2.5 million light years away—Andromeda is home to at least a trillion stars. Like the Milky Way, it's a spiral galaxy, but the distance between the two local giants may not be as great as previously thought.

Presented at the American Astronomical Society meeting in Seattle last week, a new study claims to have discovered about 200 ancient stars in the Milky Way's halo, the most distant of which is more than a million light-years from Earth. That's almost half the distance to Andromeda.

So where do the two galaxies end—and perhaps meet? “This study is redefining what constitutes the outer limits of our galaxy,” said Raja GuhaThakurta, professor and chair of astronomy and astrophysics at UC Santa Cruz, who was part of the research team. “Our galaxy and Andromeda are both so big, there's hardly any space between the two galaxies.”



This image, captured with the VISTA infrared survey telescope, shows the central part of the Milky ESO/VVV SURVEY/D. MINNITI

What is a “RR Lyrae” star? Consider this: not all stars shine as bright as each other. In short, a star may look bright because it is very luminous or because it is very close. That's a conundrum for astronomers trying to figure out distances in the cosmos. However, an “RR Lyrae” star pulsates in a certain way, so astronomers can identify them and calculate how far away they are.

The stars in question are known as “RR Lyrae” stars, a type of variable star that blinks so predictably that they're known as “standard candles.” They allow astronomers to accurately measure galactic distances solely by their brightness.

RR Lyrae are old stars with very specific physical properties that cause them to expand and contract in a regularly repeating cycle. They typically reside in ancient stellar populations over 10 billion years old.

"The way their brightness varies looks like ... they're like the heartbeats of the galaxy, so the brightness goes up quickly and comes down slowly, and the cycle repeats perfectly with this very characteristic shape," GuhaThakurta said. "In addition, if you measure their average brightness, it is the same from star to star. This combination is fantastic for studying the structure of the galaxy."

The discovery confirms our Milky Way galaxy to be a lot larger than it appears. The galaxy's disk is about 100,000 light years across, but the halo—which contains the oldest stars in the galaxy—extends for hundreds of thousands of light-years in every direction. Maybe as much as a million light-years.

"The halo is the hardest part to study because the outer limits are so far away," said GuhaThakurta. "The stars are very sparse compared to the high stellar densities of the disk and the bulge, but the halo is dominated by dark matter and actually contains most of the mass of the galaxy."

The new research is based on data from the Next Generation Virgo Cluster Survey (NGVS), a program using the Canada-France-Hawaii Telescope (CFHT) to study a cluster of galaxies well beyond the Milky Way.

## Starship conducts historic 31-engine burn



Article From Space.com

By [Mike Wall](#)

SpaceX's giant Starship vehicle just took a huge step toward its first-ever orbital test flight, which could take place as soon as next month.

A Starship first-stage prototype known as Booster 7 ignited 31 of its 33 Raptor engines during a "static fire" test today (Feb. 9) at SpaceX's Starbase facility in South Texas.

"Team turned off 1 engine just before start & 1 stopped itself, so 31 engines fired overall. But still enough engines to reach orbit!" company founder and CEO Elon Musk said via Twitter([opens in new tab](#)) just after the test wrapped up.

The static fire lasted about seven seconds, the duration that SpaceX had mapped out beforehand, according to the company([opens in new tab](#)). And Booster 7 emerged from the huge cloud of kicked-up dust in one piece, which is something to celebrate as well. The goal was to fire all 33 Raptors during the test.

SpaceX views Starship as a potentially revolutionary transportation system, one that could make Mars

colonization and other ambitious off-Earth feats economically feasible. The stainless-steel vehicle consists of two elements: A giant booster called Super Heavy and a 165-foot-tall (50 meters) upper-stage spacecraft known as Starship.

Both Starship and Super Heavy are designed to be fully reusable, and both are powered by SpaceX's next-generation Raptor engine — 33 for the booster and six for the upper stage.

For months, SpaceX has been preparing Booster 7 and a Starship prototype called Ship 24 for an orbital flight test. Such work has included a fueling test with the duo, which the company achieved on Jan. 23, and a number of static fires — prelaunch trials in which engines are ignited briefly while a vehicle remains anchored to the ground.

Ship 24 fired up all six of its Raptors at Starbase last September, for example, and Booster 7 ignited 14 of its 33 engines two months later. That was the big first stage's static-fire high until today's test, which apparently checked a crucial box on the road to an orbital attempt.



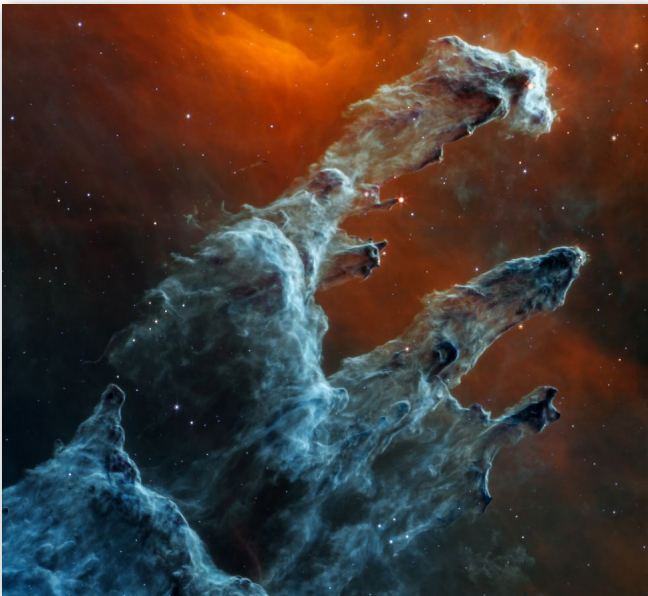
## What Has The Webb Done So Far?

Compiled from images and data at [Space.com](https://www.space.com)

### JWST HAILED AS GREATEST SCIENCE BREAKTHROUGH OF 2022

Within days of [the telescope] coming online in late June 2022, researchers began discovering thousands of new galaxies more distant and ancient than any previously documented — some perhaps more than 150 million years older than the oldest identified by Hubble,” editors of the journal *Science* wrote in a statement([opens in new tab](#)). The journal named Webb as its Science Breakthrough of 2022, while the journal *Nature* chose Jane Rigby, Webb’s operations project scientist, to include in their list, “10 people who helped shape science stories” list for 2022.

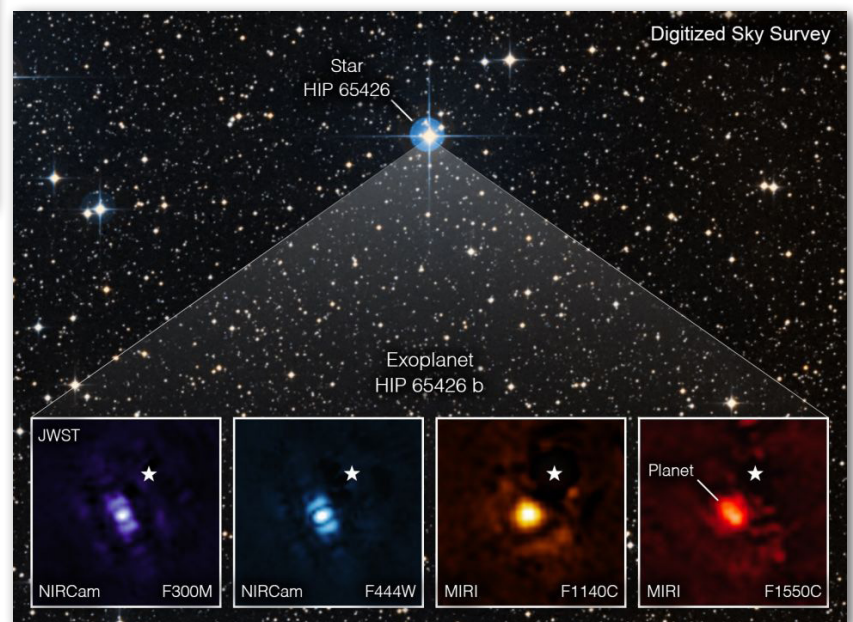
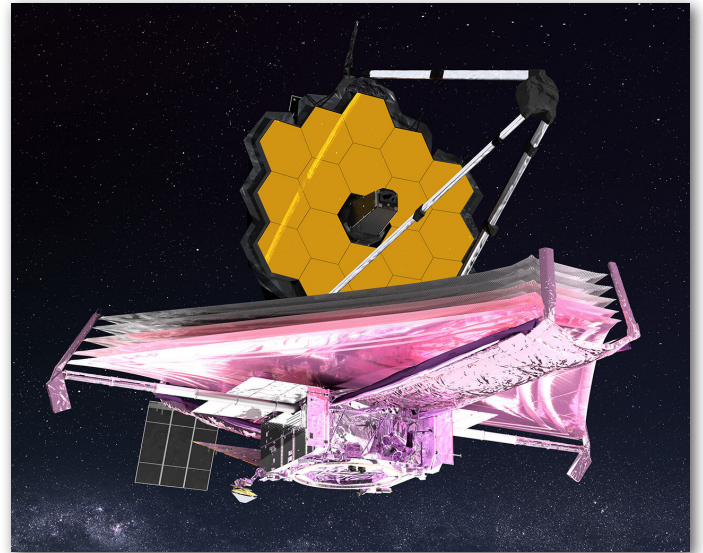
### STARS BORN IN THE PILLARS OF CREATION



The Pillars of Creation in the Eagle Nebula has long been one of the Hubble Space Telescope’s most iconic images. But though the telescope, which detects mostly visible light, captured the structure’s impressive clouds, the “creation” happening within them was hidden. Now, Webb’s infrared imaging has managed to capture it in the form of numerous protostars. Appearing as tiny red dots against the smoky backdrop of the pillars, these collections of dust and gas, each many times larger than our solar system, are stars being born.

### WEBB’S FIRST DIRECT IMAGE OF AN EXOPLANET

Scientists discovered the first exoplanets in the 1990s, and today there are over 3,000 known worlds orbiting faraway stars. Still, only around two dozen of these have been imaged directly. Most exoplanets are so far away that they can only be detected through a dip in the light of the star they are orbiting, when that planet passes in front of its host star. But Webb could change that. In September, it captured its first direct image of an exoplanet.

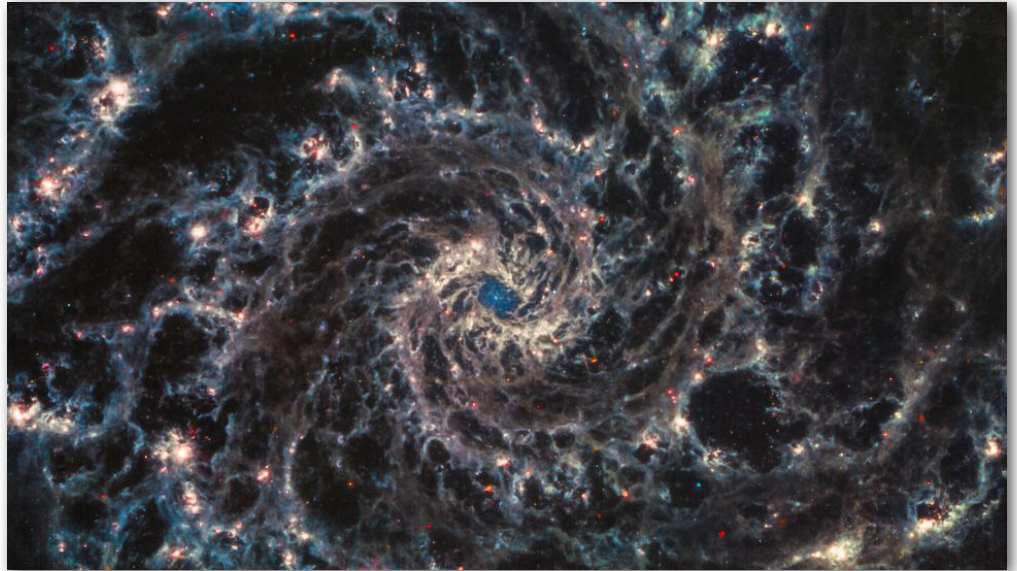


Webb’s first images of an alien world, HIP 65426b, are shown at the bottom of a wider image showing the planet’s host star. The images were taken at different wavelengths of infrared light. (Image credit: NASA/ESA/CSA, A Carter (UCSC), the ERS 1386 team, and A. Pagan (STScI).)



## RE-IMAGING THE PHANTOM GALAXY

Though the Phantom Galaxy is difficult to find in the night sky, its brilliance is far from invisible, especially when captured in infrared with Webb. Hubble's optical image of the galaxy, also called M74, shows the galaxy's perfect spiral structure and its distribution of stars, arms extending outward from a radiant center. But a new Webb image reveals fiber-like structures of heat-emitting dust and gas, emanating from a bright center rendered in vivid electric blue. The new image will shed (infrared) light on star-forming regions scattered amongst the galaxy's spiral arms.



The James Webb Space Telescope's imagery of NGC 628 (the "Phantom Galaxy") shows glowing dust in this citizen science image. (Image credit: NASA/ESA/CSA/Judy Schmidt)

## FINDING THE MOST DISTANT GALAXIES EVER



Webb was made to observe the most distant galaxies in the universe, and in mid-December, scientists confirmed that they had done just that. The telescope has officially observed the four most distant galaxies known, which also means they are the oldest. Webb observed the galaxies as they appeared about 13.4 billion years ago, when the universe was only 350 million years old, about 2% of its current age.

Scientists suspected that the four galaxies were incredibly ancient, like hundreds of others identified by Webb. As part of the JWST Advanced Deep Extragalactic Survey (JADES) researchers confirmed their age, analyzing data from the telescope's Near Infrared Spectrograph to find out how fast the galaxies were moving away from the telescope. This is the galaxies' redshift — how much the wavelengths of light they shed have lengthened as the universe expands. Their redshift was 13.2, the highest ever measured.

"These [galaxies] are well beyond what we could have imagined finding before JWST," Brant Robertson, an astrophysicist at the University California Santa Cruz and one of the researchers involved in the observations, said in a statement. "With JWST, for the first time we can now find such distant galaxies and then confirm spectro-

scopically that they really are that far away."



## ABOUT THE ASTRO SIG

*Every month we get together on a Zoom call with a pretty loose agenda and manage to have an absolute blast talking about Astrophotography. I hope you'll join us if you're interested in Astrophotography.*

We have a nice, diverse group with a wide range of skill sets and interests. Some DSLR/Mirrorless shooters mixed in with telescope shooters. Some use Star Trackers, some use goto mounts, some use laptops and some use a fun little unit called the ASIAIR (a small little computer inside a box about the size of a cell phone that connects to a tablet or smart phone).

On any given day or moment we can shoot an email out to the group and get suggestions and answers, how cool is that?

So, if you want to learn Astrophotography (like Astro 101) with a LOT of fun people, join us.

## IMAGING TRIPS TO BIG CYPRESS

Big Cypress National Park is about a 75 minute drive from Ft. Myers and it is probably one of the darkest areas in the state of Florida. We have a great place to set up and frequently meet astrophotographers and observers from other parts of the state.

The best way to stay tuned in to our impromptu field trips is to get on our Astro SIG Google Groups email list. [Contact Mike Jensen](#).

## The Astrophotography SIG

### Astro Sig Schedule 2023

All Meetings at 6:30pm

March 21st  
April 18th  
May 16th  
June 20th  
July 18th  
August 15th  
September 19th  
October 17th  
November 21st  
December 19th



### ZOOM LINK

<https://us02web.zoom.us/j/81077794455?pwd=eGpxalRET1BPckdEcmtlQ290WU5j-dz09>

Meeting ID: 810 7779 4455  
Passcode: Phot@S!G23



Video Tour of NGC 346

James Webb Space Telescope (JWST) ©  
199K subscribers

Subscribed

650

Share

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Save

...

[This video](#) tours areas of NGC 346, one of the most dynamic star-forming regions in nearby galaxies. NGC 346, a star cluster that lies within a nebula, is located 210,000 light years away. It resides within the Small Magellanic Cloud, a dwarf galaxy close to our Milky Way.

## *AstroSIG Photos*

This month offers some GREAT pics of The Great Orion Nebula (and the Running Man). Linwood Ferguson and Mike Jensen photograph the gaseous icon in narrowband and Ray Bratton shoots it in RGB. All beautiful!



### *Orion and Running Man in HSO (M42) by Linwood Ferguson*

This is the first light with my QuadTCC used with the SVX152T. It turns out to be a good match, if a bit difficult to get the tilt dialed in; nice round stars in the corner, and minimal vignetting even on a full frame image (this is a slight crop) just to emphasize the nebula). The reducer still has a bit of the far corners with some points on the stars, but a very small crop fixed that (easier than getting tilt perfect!)

This is mostly narrowband, with about 4 hours each of Ha, Sii, and Oiii; there is also an hour each of Red, Green and Blue which was used solely as a synthetic luminance to blend with the narrow band (also as luminance) and bring out the running man more completely, since it shows better in broad band. The area around the nebula uses luminance almost entirely from Ha (masked) to highlight the surrounding dust/gas which is more visible in Ha.

This dues use BlurXTerminator to bring out some detail, though mostly it reduced star bloat. Local Histogram Normalization is actually the source of most of the structure contrast, as is HDR Multiscale to tame the brighter areas and highly contrast in them.

All my attempts to use RGB stars failed, so this is SPCC's attempt at better color (with a tad of magenta removed).

This is a redo of my M42 from early 2021; there I used a 4" refractor (NP101is), this is entirely with the 6" refractor (SVX152T). Similar results, but a lot more detail, and a bit more dust/gas around it.





***M42 The Great Orion Nebula by Mike Jensen***

Mike's image shows a bit of a wider view, shot with a WO 61mm telescope. Imaged in narrowband, processed in Pix-Insight (Using BlurXT, StarsXT), Photoshop and Topaz DeNoise. This was a BIG experiment for me. I shot much of this around the full moon. Because of the configuration of my yard and surrounding property I was able to image from around 9pm – 2am nightly. At first I thought what I was going to need to do was do some sort of an HDR image to keep the core from being blown out. So, I shot a bunch of 30 second exposures and a bunch of 10 second exposures. I ended up only using the 30 second images. When it came time to process I ran each filter through the Sub Frame Selector tool in PI. This helps to grade the frames, keep the good, toss the bad. For this image I ended up with 306 Ha, 339 Oii, 343 Sulphur for a total of 988 subs.

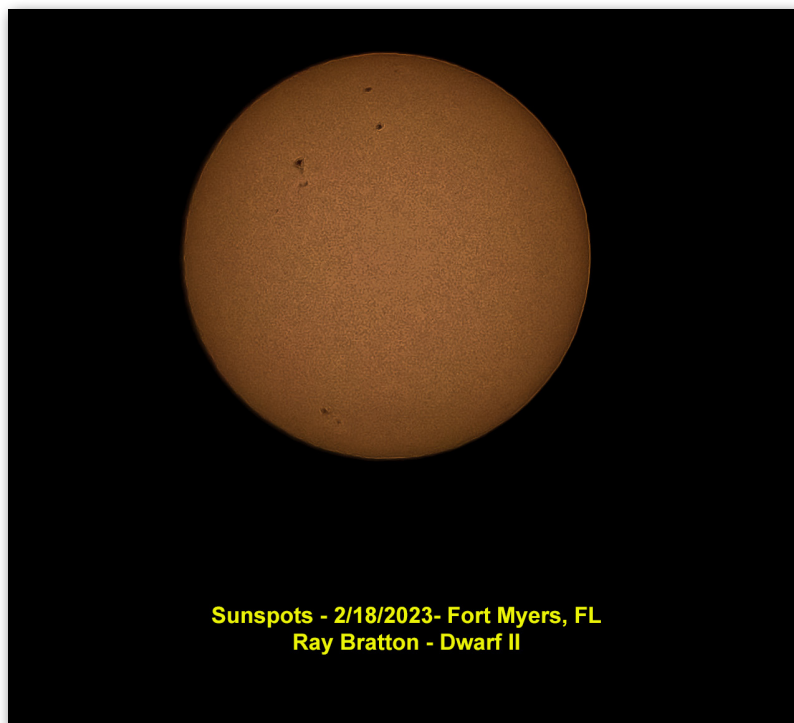
I put the subs through the WBPP tool and got my master subs. I did a few things here, ran the BlurXT on it, later I ran the StarXT on it to separate the stars from the nebula. That way I could really work on the nebula. In combining the masters I tried a variety of approaches. The standard SHO (Hubble Palette) was rather boring to me. I also tried SOH and didn't really care for that. I then ran HOS and really liked the colors on that. So I used HOS as my base image. I saved out each master as a stretched tiff file to help with added texture when working in Photoshop. The Photoshop file is 14 layers. I then ran them through Topaz DeNoise to soften it up a bit. I did a bit of the same process on the 10second images and found that 30 secs was the sweet spot. When you take a LOT of 30 second images you get those outer bands of nebulosity floating out there. So, I mentioned an experiment. The big part was doing a bit of hybrid processing in both PI and PS to get the result I wanted. I'm excited about doing more processing this way, and I'm learning a ton about PI now.





**M43 Running Man Nebula & M42 Great Orion Nebula**

Ray Bratton - 2/16/2023 - Fort Myers, FL  
ES127 Triplet, EQ6R Pro, ASI294MC Pro, ASIAIR+,  
120G, 301 30s exposures (2.5 hr), Optolong L enhance,  
APP, PSRAW, Topaz DeNoise



**Sunspots - 2/18/2023- Fort Myers, FL**  
Ray Bratton - Dwarf II







Comet C-2022 E3 (ZTF) by John Udart

This is C-2022 E3 (ZTF) imaged on February 7, 2023. I took 45 subs at 60 seconds early in the evening while the moon was still low using the WO GT 71 @ 336mm.





Christmas Tree Cluster / Fox Fur Nebula Steve Sandor 2-16-2023  
48 frames with 90 second exposure @ISO 1600, using SVBony  
UHC filter and modified Canon D600 camera, 115mm Astrotech  
telescope with .8 field reducer / flattner. Stacked with DSS and  
post processed with GIMP. Taken 2/16/2023 in Fort Myers. EQ6  
Pro mount with no tracking.

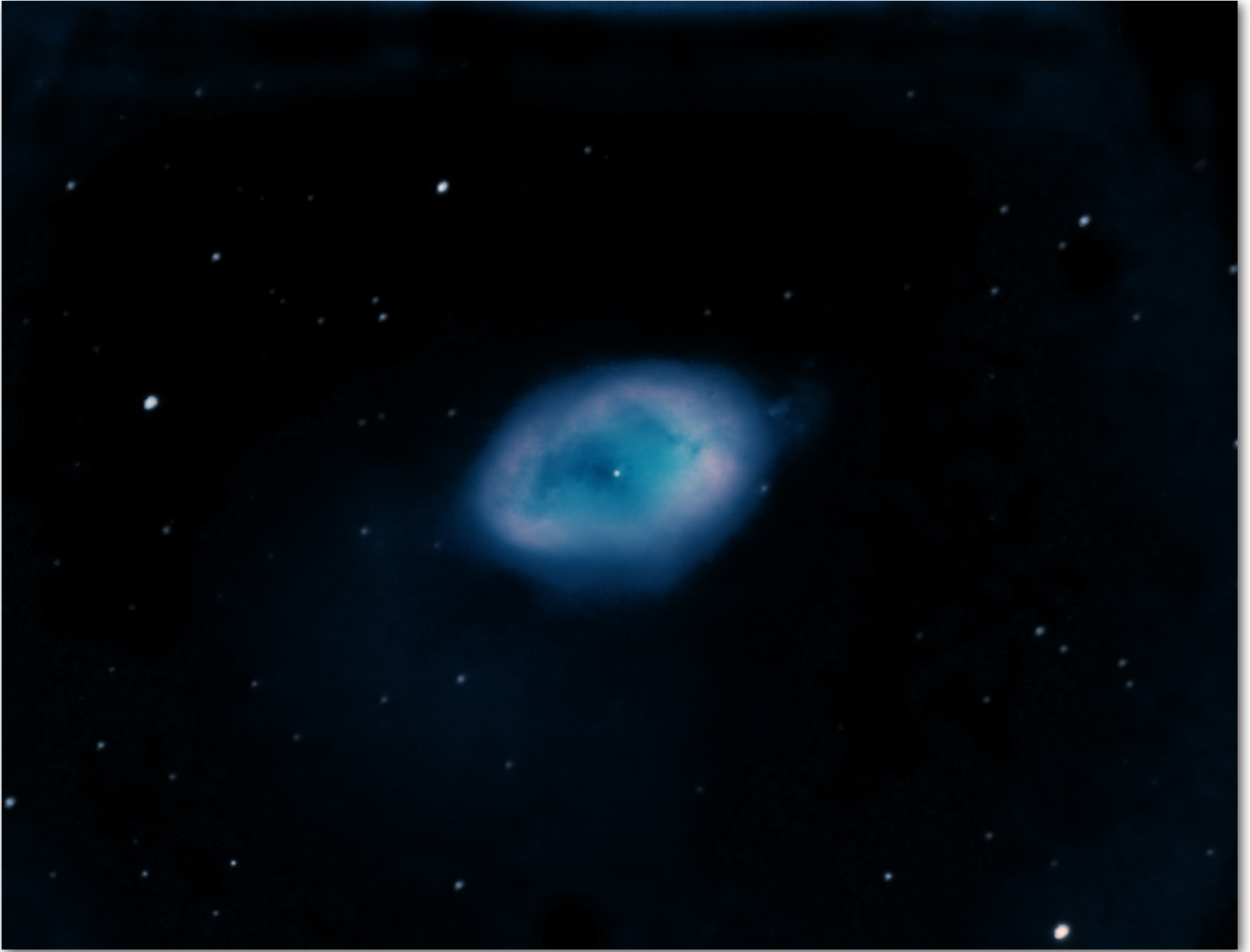
*Christmas Tree Cluster / Fox Fur Nebula by Steve Sandor*



### ***M81 & M82 by Don Bishop***

This shot taken while “running tests on several mounts to sort out backlash and guiding problems”. I ended up shooting a fair amount of data on M81/M82 since I was using my tried and true TV85 setup. Throwing out the garbage I still had enough data to process so I decide to see what I had. I had to reshoot the calibration frames and there was something that APP didn’t like but it appears that they were applied well enough.





*NGC 1360 by Dr. Mario Motta*

Shot using a C14 and using narrowband filters. NGC 1360, also known as the Robin's Egg Nebula, is a planetary nebula in the constellation of Fornax. It was identified as a planetary nebula due to its strong radiation in the OIII bands. Reddish matter, believed to have been ejected from the original star before its final collapse, is visible in images.



***NGC 2359 (Thor's Helmet) by Dr. Mario Motta***

Shot using a C14 and using narrowband filters. NGC 2359 is an emission nebula in the constellation Canis Major. The nebula is approximately 3,670 parsecs away and 30 light-years in size. The central star is the Wolf-Rayet star WR7, an extremely hot star thought to be in a brief pre-supernova stage of evolution



## Astronomy For Beginners: How To Get Started



Did you know you can see a galaxy 2½ million light-years away with your unaided eyes? Craters on the Moon with binoculars? Countless wonders await you any clear night. The first step in astronomy for beginners is simply to look up and ask, "What's that?" Begin gazing at the stars from your backyard, and you'll be taking the first step toward a lifetime of cosmic exploration and enjoyment.

But what, exactly, comes next? Too many newcomers to astronomy get lost in dead ends and quit in frustration. Astronomy for beginners shouldn't be that way.

What advice would help beginners the most? A while ago, the Sky & Telescope editors got together to brainstorm this question about astronomy for beginners. Pooling thoughts from more than 100 years of collective experience answering the phones and mail, we came up with the following pointers to help newcomers past the most common pitfalls and onto the likeliest route to success.

### LEARN THE NIGHT SKY WITH THE UNAIDED EYE

Astronomy is an outdoor nature hobby, so the best way to begin is to go out into the night and learn the starry names and patterns overhead.

- Use the monthly naked-eye

### From Sky & Telescope

- star charts in [Sky & Telescope magazine](#)
- Download our (Sky & Telescope's) free [Getting Started in Astronomy flyer](#) (with bimonthly maps)
- Buy yourself an inexpensive planisphere, which shows the constellations visible at any time throughout the year.

Even if you live in a densely populated, light-polluted area, there's more to see up there than you might imagine. The ability to look up and say, "There's Polaris" or "That's Saturn" will provide pleasure, and perhaps a sense of place in the cosmos, for the rest of your life.

### THINKING TELESCOPE? START STARGAZING WITH BINOCULARS INSTEAD

Binoculars make an ideal "first telescope" for several reasons:

[Binoculars](#) show you a wide field of view, making it easy to find your way around. A higher-power telescope magnifies only a tiny, hard-to-locate bit of sky.

They also show a view that's right-side up and straight in front of you, making it easy to see where you're pointing. An astronomical telescope's view, by contrast, is often upside down, is sometimes mirror-imaged as well, and is usually presented at right angles to the direction you're aiming.

Binoculars are also relatively cheap, widely available, and a breeze to carry and store. The performance of binoculars is surprisingly respectable. Ordinary 7- to 10-power binoculars improve



*How good an astronomer you become depends less on your gear than on building your knowledge and skills.*

~ Mark Schroeder

on the naked-eye view about as much as a good amateur telescope improves on the binoculars — for much less than half the price.

For astronomy, the larger the front lenses the better. High optical quality is also important, more so than for binoculars that are used on daytime scenes. Modern image-stabilized binoculars are a tremendous boon for astronomy (though expensive), but any binoculars that are already knocking around the back of your closet are enough to launch an amateur-astronomy career.

### DIVE INTO MAPS AND GUIDE-BOOKS

Once you have the binoculars, what do you do with them? You can have fun looking at the Moon and sweeping the star fields of the Milky Way, but that will wear thin pretty fast. However, if you've learned the constellations and obtained detailed sky maps, binoculars can keep you happily busy for years.

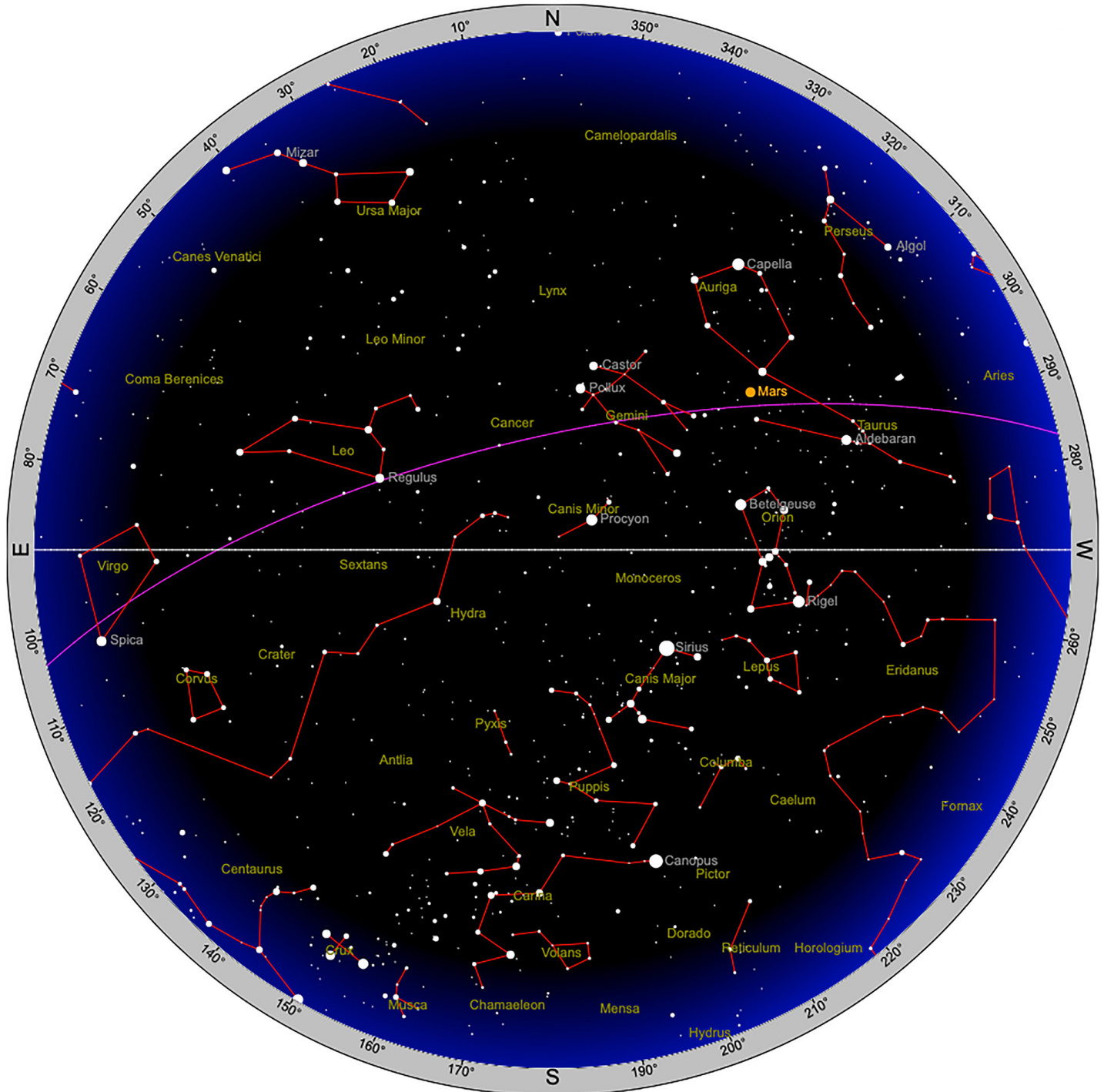
Article continued online at: <https://skyandtelescope.org/astronomy-resources/stargazing-basics/how-to-start-right-in-astronomy/>

## DEC 2022 Sky Chart



### Interactive sky chart

Year  Month  Day  -  Hour  -  Minute  -



You can download or view this map better at: <https://heavens-above.com/skychart2.aspx?lat=0&lng=0&loc=Unspecified&alt=0&tz=UCT>



Planet Positions

Click on the graphic above to go to Time and Date for a great simulation of the rotation of the constellations and the rising/setting of the planets. The chart below is set for the date of our meeting but can be programmed for any date and time. The chart can also be found at [this link on Heavens Above](#).



Hk

Planet Summary

Year  Month  Day  Time

	Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Right ascension	23 <sup>h</sup> 37 <sup>m</sup> 27.8 <sup>s</sup>	1 <sup>h</sup> 45 <sup>m</sup> 22.4 <sup>s</sup>	5 <sup>h</sup> 38 <sup>m</sup> 30.8 <sup>s</sup>	0 <sup>h</sup> 56 <sup>m</sup> 47.8 <sup>s</sup>	22 <sup>h</sup> 12 <sup>m</sup> 42.0 <sup>s</sup>	2 <sup>h</sup> 53 <sup>m</sup> 31.3 <sup>s</sup>	23 <sup>h</sup> 42 <sup>m</sup> 44.9 <sup>s</sup>	20 <sup>h</sup> 8 <sup>m</sup> 55.5 <sup>s</sup>
Declination	-4° 12' 50"	10° 57' 8"	25° 35' 18"	4° 53' 31"	-12° 27' 25"	16° 14' 22"	-3° 8' 28"	-22° 34' 31"
Range (AU)	1.361	1.290	1.293	5.872	10.716	20.268	30.905	35.285
Elongation from Sun	2.2°	33.7°	90.5°	20.3°	24.1°	51.1°	1.2°	55.2°
Brightness	-1.6	-3.9	0.7	-1.9	0.9	5.8	8.0	14.4
Equatorial Diameter	4.94"	12.93"	7.24"	33.57"	15.51"	3.48"	2.21"	0.09"
Phase Angle	6.0°	50.0°	37.4°	4.0°	2.4°	2.3°	0.0°	1.3°
Constellation	Aquarius	Pisces	Taurus	Pisces	Aquarius	Aries	Pisces	Capricornus
Meridian transit	12:04	14:13	18:06	13:25	10:41	15:22	12:12	08:38
Rises	06:03	08:12	12:06	07:26	04:42	09:23	06:12	02:39
Sets	18:04	20:13	00:07	19:24	16:41	21:21	18:10	14:37
Altitude	-37.8°	-5.8°	45.6°	-18.0°	-56.9°	10.7°	-36.5°	-67.4°
Azimuth	264.7°	281.0°	308.1°	275.1°	246.7°	286.5°	266.1°	179.9°
Inferior Conjunction	2023-Jan-07 2023-May-01	2022-Jan-09 2023-Aug-13	-	-	-	-	-	-
Opposition	-	-	2022-Dec-08 2025-Jan-16	2022-Sep-26 2023-Nov-03	2022-Aug-14 2023-Aug-27	2022-Nov-09 2023-Nov-13	2022-Sep-16 2023-Sep-19	2022-Jul-20 2023-Jul-22
Superior Conjunction	2022-Nov-08 2023-Mar-17	2022-Oct-22 2024-Jun-04	2021-Oct-08 2023-Nov-18	2022-Mar-05 2023-Apr-11	2023-Feb-16 2024-Feb-28	2022-May-05 2023-May-09	2022-Mar-13 2023-Mar-15	2023-Jan-18 2024-Jan-20
Max. eastern elongation	2022-Dec-21 2023-Apr-11	2021-Oct-29 2023-Jun-04	-	-	-	-	-	-
Max. western elongation	2023-Jan-30 2023-May-29	2022-Mar-20 2023-Oct-23	-	-	-	-	-	-
Perihelion	2023-Jan-02 2023-Mar-31	2022-Sep-04 2023-Apr-17	2022-Jun-21 2024-May-08	2023-Jan-20 2034-Dec-05	2003-Jul-26 2032-Nov-28	1966-May-22 2050-Aug-17	1876-Aug-26 2042-Sep-03	1989-Sep-05 2237-Sep-15
Aphelion	2023-Feb-15 2023-May-14	2022-Dec-26 2023-Aug-07	2021-Jul-13 2023-May-30	2017-Feb-17 2028-Dec-28	2018-Apr-17 2047-Jul-15	2009-Feb-27 2092-Nov-23	1959-Jul-17 2125-Dec-01	1866-Jun-04 2114-Feb-19

## *Fun Astronomy Facts*

**You can't stand on Uranus** - If we ever manage to travel to the gas planets, you might be in for a bit of a shock when you step off the spaceship. That's because Jupiter, Saturn, Uranus and Neptune don't have solid surfaces - they have a rocky core, but are mainly big balls of hydrogen and helium.

**The whole of Mars is as cold as the South Pole** - If you're travelling to Mars anytime soon, be sure to bring your big coat. Its average temperature is roughly -60°C, the same as the South Pole (minus the penguins). Some scientists, in the hopes of making it more habitable, have suggested ways in which we could make Mars warmer. One of these ideas is to build giant mirrors that will reflect the Sun's rays, and kick-start some speedy Martian warming.

**Saturn's rings are 90% water** - Saturn is home to the Solar System's most epic ice rink. Being so far from the Sun, the water in its rings is frozen into ice. It is one of four planets that have rings around them - the other gas planets do too. However, the rest were undiscovered until the 1970s when probes went to explore them. Saturn's were the first rings seen through telescopes from Earth.

**Jupiter's largest moon has a salty ocean that contains more water than on Earth** - Forget holidays in the Mediterranean. If you want vast ocean views, Jupiter's biggest moon Ganymede is the place to be. The moon is larger than Mercury and would be classed as a planet if it were orbiting the Sun rather than Jupiter.

**Mercury takes roughly three Earth months to orbit the Sun** - In three months you could write a book, pass your driving test or learn basic guitar. It's also the amount of time it takes Mercury to travel around the Sun. It's the shortest orbit in the Solar System, because Mercury is the closest planet to the Sun. So, next time someone asks you when you'll get around to mowing the lawn, tell them it'll be in roughly one Mercurian year.

**It would take 100 times longer to travel around the Sun than the Earth** - Long haul flights to the other side of the world can be grueling, but it's nothing compared to how long it would take to fly round the Sun. To go on this trip of a lifetime, you'd have to prepare yourself for a journey of 206 days. Let's hope there are places to stop to refuel along the way.

**A day is longer than a year on Venus** - This one might sound completely out there, but bear with us. A day is how long it takes a planet to rotate fully, and a year is how long it takes a planet to orbit the Sun. Venus is one of only two planets that rotates clockwise, and it spins much slower than others in the solar system. Some think this is due to it being knocked into a different direction by another planet, or it just gradually slowed to a halt then started turning the other way. It takes 243 Earth days for Venus to do one complete rotation, and 225 Earth days to orbit the Sun. Therefore, a day is longer than a year on Venus.

**Pluto isn't the only dwarf planet in our Solar System - we have six** - The first time you may have heard the term 'dwarf planet' was when Pluto got demoted to one in 2006 (RIP). However, we actually have six in our Solar System. Pluto, Ceres, Makemake, Haumea, and Eris were the only five that we knew about up until very recently. Ceres is in the asteroid belt between Mars and Jupiter, and became the first dwarf planet to be visited by a spacecraft in 2015. Recently though, a new dwarf planet has been discovered, which is officially called 2015 TG387, but has been given the nickname 'The Goblin'.



Southwest Florida Astronomical Society Meeting Minutes  
Calusa Nature Center Planetarium and Zoom February 2, 2023

Attendees.....31 total of which 22 in person and 9 on zoom including all board members.

President Brian Risley opened the meeting at 7:00PM welcoming all and introducing our guest speaker, Doctor Thomas Prettyman, Planetary Science Institute. His topic " Exploration of the Asteroid belt"...Doctor Prettyman acknowledged NASA Discovery Program and NASA Data Analysis Program. He illustrated the origin of asteroids, the inner solar system, formation of the earth, earth's interior and how we should get involved.... <https://psyche.asu.edu/get-involved>.... or How to get involved-@MissionToPsyche. Several questions were asked and all enjoyed his presentation.

Brian then introduced new members and guests. He reminded us that annual dues need to be paid and thanked those who have already paid. He also advised that the Florida State Registrar and change of Registered Agent has been finalized and processed.

#### Upcoming Outreach Events:

Big Cypress Observing: 2/18/23 and 3/18/23 Seahawk Park star Parties: 3/23/23 at Sunset  
Rotary Park Public Star Party: 2/10/23 from 6PM until 10PM with Brian Risley for a viewing of Venus and Mars.  
STEMTastic solar observing at Centennial Park: 2/11/23 from 10AM until 2PM With Brian Risley during as part of the Edison Events.

Tom Klein advised that he will hold a viewing at Rotary Park on 2/17/23. He is asking for volunteers to help him. 6 PM until he ends it.

Burrowing Owl Festival at Rotary Park: 2/25/23 from 10 AM until 4 PM with John MacLean who will man a booth and has asked for volunteers to assist.

Babcock Ranch CNCP Observing: 2/4/23 with Heather Preston

Charlotte solar Observing at Ponce De Leon Park: 2/4/23 from 9 AM until Noon, Weather permitting with Tom Segur.

Charlotte FSW Observatory: 2/17/23 a half hour after sunset with Tom Segur.

#### Committee meetings and actions steps:

Mike Jensen advised that there will be a meeting of the Astrophotography

Special Interest group via Zoom at 6:30 PM on 2/21/23.

John MacLean advised that the Program committee needs more volunteers, that speakers were scheduled through June. Mike Jensen echoed the need for volunteers and praised Brian for doing so much solo work on these events.

Brian advised that the Board of Directors held a meeting on 1/23/23 and that the Astronomical Society is requesting an update to our ByLaws. Sean Day moved that action be taken, seconded by John MacLean and passed unanimously. Mike Jensen and John MacLean are working as a committee to review our ByLaws and make said revisions available for a vote by the membership at a future date. Sean Dey volunteered to sit on this committee. Anyone else is welcome.

Mike Jensen reported that a group of 16 members met at Stevie's Tomato restaurant at 5:30PM for dinner and asked for a Social director volunteer to be chairperson of the Outreach and Social events committee.. Eva Frankenberger eagerly volunteered and all approved unanimously. Eva said she will begin immediately to set goals for this newly created committee.

Lists of members, places to socialize and email connections.

Brain advised that there are many pieces of equipment that need to be sold or auctioned off. Tony Costanzo volunteered to be the auctioneer and also stated that he will have a vendor table at the Winter Star Party at Scout Key from 2/12/23 until 2/18/23 and would sell said items pro bono. Brian said that he would need more time than that to figure out what we have and how much \$\$\$ we would want for them..Tony and Brian to meet later on.

Tom Klein was thanked for bringing his laptop and fixing the sound and computer presentation.

Officers' reports:

Vice President Mike Jensen asked for help on articles for his monthly newsletter. All agreed that Mike presents a professional and thorough newsletter and will assist as they can.

Secretary Dan Dannenhauer asked for approval of the January 5, 2023 minutes.

Moved by John MacLean and seconded by Reggie Bachman, passed without objection.

Treasurer John MacLean presented his January condensed version of financials.

Opening balance of \$3,168.60 and closing balance of \$3,758.60. Sean Day motioned to approve and Don Palmer seconded. Vote passed unanimously.

Meeting adjourned at 9 PM Dan Dannenhauer