

# The Eyepiece



SW FL Astronomical Society, Inc.  
PO Box 100127  
Cape Coral FL 33910



Photo By Phil Jansen



**Mike Jensen - Editor**

Hi Everyone!  
There is much going on in the Southwest Florida Astronomical

Society! If you're new to astronomy please join our experts at the Moore Observatory on Friday May 5th to view the night sky through one of our amazing telescopes! If you're mesmerized by the Sun, our viewing team does that too! This month on Saturday May 21st at 9am at Ponce De Leon park in Punta Gorda. Also, we have a star party at Seahawk Park on May 21st in the evening.

If you're in to Astrophotography, join the Astro SIG group. We meet on the third Tuesday at 6:30 on Zoom. More info on page 12. Also, this month I've included several links to some good Astrophotography tutorials.

Last month we formed a new steer-

ing committee for our monthly programs. See a report on their initial progress on page 3.

There's an AMAZING amount of information for you in the Astronomical League report (thanks John MacLean), the Night Sky Network Report and I've included some cool reports on the SpaceX Crew 4 which launched a few weeks ago.

For you Astrophotography nerds, I dropped down a rabbit hole researching the camera that was launched on the JWST (my mind is blown at the science and technology here).

Finally, speaking of astrophotography, check out the images some of our very own club members! Images of all types, wide field and deep sky!

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### NOT TO MISS:

- Seahawk Park star party: 5/21/22
- Moore Observatory First Fridays May 5th Contact Tom Segur
- Solar Observing 3rd Saturday on 5/21 Ponce De Leon park, Punta Gorda

## Monthly Meetings

Our monthly meetings are held on the **first Thursday** of each month. The meetings begin at 7:30pm.

***This month's meeting will be a combined live and Zoom meeting! Masks should be worn if attending in person at the Calusa Planetarium.***

Each meeting will have its own link/meeting ID (see below).

So, mark your calendar for:

May 5, 2022  
June 3, 2022  
July 1, 2022  
August

How to use Zoom.

1. Download the software for smartphone, tablet or computer  
Click the link sent out for the meeting.

<https://widener.zoom.us/j/96535769204>

Meeting ID: 965 3576 9204

2.

One tap mobile:

+13126266799,,96535769204#

(or)

+16465588656,,96535769204#

Click on window that appears, "Join Zoom Meeting".

3. Then "Join Computer Audio"

4. On entering the meeting, audio is going to be "off" by default. Press down and hold your space bar to talk. Both Brian and the presenter will be unmuted by default. This is being done to cut down on background noise, as it seems to accumulate as our numbers increase.

# May 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>1</b> NEW Moon	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> Membership Meeting - 7:30pm Calusa Planetarium & Zoom	<b>6</b> Moore Observatory Viewing	<b>7</b>
<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
<b>15</b>	<b>16</b> Full Moon	<b>17</b> Astro SIG Meeting 6:30pm	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b> Solar Viewing Ponce Park Punta Gorda
<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>
<b>29</b>	<b>30</b> NEW Moon	<b>31</b>				

## Moore Observatory Dates

Observation sessions typically begin about 30-45 minutes after it is dark enough to see the stars and continue as long as stargazers linger. Prior to complete darkness, visitors can not be admitted into the observatory as the equipment needs to be setup and aligned with the stars each time but early arrivers are welcome to enjoy views of the lake and the scenery of the campus from the lakeside picnic tables.

The public sessions are free and held at least once monthly from September through May, weather permitting.

May 6, 2022

Also, the club conducts solar observing on the 3rd Saturday morning of each month. Contact for all observing events is:

Thomas Segur  
[tsegur479@comcast.net](mailto:tsegur479@comcast.net)  
941-249-8726

## 2022 Dues

If you have not sent in your check for your 2022 dues, please do so upon reading this announcement.

**Dues are an affordable \$25.**

Make check out to:  
Southwest Florida  
Astronomical Society  
PO Box 100127  
Cape Coral, FL 33910

## President's Report

### Brian Risley - SWFAS President

There are a lot of improvements going on for the club on the internet. Mike Jensen has been busy with website changes. John MacLean and Mike are working on electronic payments and this should be available shortly.

We have some committees working on our internet presence, programs and public announcements.

Notices for those who have not renewed for 2022 have been sent out. Please respond one way or another if you got one.

***This month's presentation is by our own Don Bishop and his "My Journey into Astrophotography".***

We are working to get a wired connection into the planetarium to improve the connectivity and Zoom quality. We also have established a regular Zoom connection link information so that you don't have to have a new one each month. I will send it out also with the meeting announcement and if it doesn't work for you, please cut and paste the address into your browser vs using the built in link.

It is Dues time. If you are not sure if you have paid for 2022, please check with John MacLean. We have left people on the club email list because of Covid, but we will be cleaning out the lists when we report to the AL in June.

## Star Parties

**These are the dates for the Seahawk Park  
Saturday Night star party 5/21/2022.**

### PROGRAMS STEERING GROUP – STATUS SUMMARY FOR MAY 2022 NEWSLETTER

- Convened steering group with 4 members: John MacLean (coordinator), Eva Frankenberger, Mike Jensen, Roxanne Riley
- Top Priority: Establish a first rate line-up of presenters for astronomical topics of interest to the membership for the monthly general meetings. Have these set in place at least 3 months in advance. Presentations will be a mixture of in-person talks at the Planetarium and Zoom presentations from remote presenters. Improve overall attendance by leveraging local media.

Current Status:

- Have May 2022 presenter in place with June under review
- Member Tom Klein confirmed that our major issue with utilizing Zoom currently at the Planetarium is the weak and unstable wifi within the dome itself. Nature Center network support is working to install a wifi AP and wired Ethernet ports in the dome. This is targeted to be completed prior to our June 2 session.
- We would like to see our main goal of having set up the rolling schedule of presenters fully in place by September/October 2022.
- We are also looking to improve the mechanics of presenting Planetarium projector shows via Zoom coordinating with Heather Preston.

## Club Officers & Positions

President/Equipment  
Brian Risley  
[swfaspres@gmail.com](mailto:swfaspres@gmail.com)  
239-464-0366

Vice President/Programs  
Mike McCauley  
[mmccauley13@comcast.net](mailto:mmccauley13@comcast.net)  
860-982-5022

Secretary  
Don Palmer  
[swfas.sec@gmail.com](mailto:swfas.sec@gmail.com)  
239-334-3471

Treasurer/AL Coordinator  
John MacLean  
[john.maclean@comcast.net](mailto:john.maclean@comcast.net)  
239-707-3365

Charlotte Event Coordinators  
Tony Heiner  
[verahei@aol.com](mailto:verahei@aol.com)  
941-457-9700

Thomas Segur  
[tsegur479@comcast.net](mailto:tsegur479@comcast.net)  
941-249-8726

Big Cypress Viewing Coordinator  
Mike Jensen  
[info@jensenone.com](mailto:info@jensenone.com)  
913-304-0495

Newsletter/Website  
Mike Jensen  
[info@jensenone.com](mailto:info@jensenone.com)  
913-304-0495

FSW Punta Gorda Moore Observatory  
Director Thomas Segur  
[tsegur479@comcast.net](mailto:tsegur479@comcast.net)  
941-249-8726

Club Librarian  
Maria Berni  
239-940-2935

Club Historian  
Danny Secary  
[asecary@gmail.com](mailto:asecary@gmail.com)  
239-470-4764

Calusa Nature Center Planetarium Director  
Heather Preston  
[heather@calusanature.org](mailto:heather@calusanature.org)  
239-275-3435

## The Astronomical League Report

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 linking to your digital copy of the March 2022 Quarterly Reflector magazine on around February 21, You can also directly access copies via the web at <https://www.astroleague.org/reflector>

### ALCON 2022

The Astronomical League has announced that it will hold its National Convention in Albuquerque, New Mexico from July 28 – July 30. Full details are available at the following link: Astronomical League Convention | Hosted by The Albuquerque Astronomical Society ([al-con2022.org](http://al-con2022.org))

The main conference will be held on Thursday, Friday, and Saturday and features speakers and workshops There will be an evening The special events include an evening presentation by Apollo 17 astronaut Harrison Schmitt on July 29 and a tour of the Karl Jansky Very large Array (VLA) on July 31. Discounted rates are available at The Embassy Suites.

### Monthly highlight of the Astronomical League Observing Programs

Last month we covered the Carbon Star and Double Stars observing programs which are both reasonably suited to back-yard observing in light polluted areas. This month we'll cover the two Lunar Observing Programs for which typical light pollution presents no problems at all.

### Lunar Observing Program

This is the introductory program suited to newcomers, both young and old. The 100 lunar features selected are broken down into 18 naked eye (e.g. Maria), 46 binocular, and 36 telescopic targets. Small aperture equipment is entirely appropriate and the listing was validated by



VLA Image by Mike Jensen

the Astronomical League using 7 X 35 binoculars and a 60mm refractor. A tripod is highly recommended for binocular use. The binocular targets include 39 of the most prominent craters. The telescopic targets include craters, mountains, valleys, walls, and various other lunar features. A convenient check list is provided to facilitate recording the observations. Binoculars may be used for any of the naked eye targets and a telescope may be substituted for all binocular targets. The laminated Moon Map by Sky Publishing is recommended as a low cost, good lunar map. This is available for various telescope orientations.

### **Lunar II Observing Program**

This program builds on the Lunar Observing Program and is designed for the more experienced observer. The observations are designed to help members improve their observing skills and expand their knowledge of the visible lunar surface. Again, a minimum of 100 observations are required. 67 targets must be observed and described with the additional targets requiring sketches as well. Some

observations require the same feature being observed under different lighting conditions. In addition to standard lunar features, various landing sites for Apollo and Luna missions are included. Often times viewers at star parties ask about whether lunar landing sites can be pointed out and having a knowledge of the general areas where various missions took place can certainly be helpful in this regard. Finally, observations of lunar eclipses and occultations are also included. In order to obtain a certificate and pin, successful completion of the Lunar Observing Program is a prerequisite.

The late Patrick Moore was a confirmed "lunatic". Completing the two Lunar Observing programs will help anyone to begin following in Patrick's footsteps and gain thorough familiarity with the Moon's topography.

### **Lunar Observing Resources**

The Astronomical League does not provide specific reading recommendations but the following two books provide very good information on the Moon including descriptions of the features covered by the two lunar observing programs:

Patrick Moore on the Moon

The Moon in Close-up, John Wilkinson

Cassell Illustrated, 2001

Patrick Moore's Practical Astronomy Series, 2010



**Moon Image by Mike Jensen**

## The Night Sky Network



This article is distributed by NASA Night Sky Network

The Night Sky Network 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!

### Night Lights: Aurora, Noctilucent Clouds, and the Zodiacal Light

David Prosper

Have you spotted any “night lights”? These phenomena brighten dark skies with celestial light ranging from mild to dazzling: the subtle light pyramid of the zodiacal light, the eerie twilight glow of noctilucent clouds, and most famous of all, the wildly unpredictable and mesmerizing aurora.

Aurora, often referred to as the northern lights (aurora borealis) or southern lights (aurora australis), can indeed be a wonderful sight, but the beautiful photos and videos shared online are often misleading. For most observers not near polar latitudes, auroral displays are relatively rare and faint, and without much structure, more gray than colorful, and show up much better in photos. However, geomagnetic storms can create auroras that dance and shift rapidly across the skies with several distinct colors and appear to observers much further away from the poles - on very rare occasions even down to the mid-latitudes of North America! Geomagnetic storms are caused when a magnetic storm on our Sun creates a massive explosion that flings a mass of particles away from its surface, known as a Coronal Mass Ejection (CME). If Earth is in the path of this CME, its particles interact with our planet’s magnetic field and result in auroral displays high up in our ionosphere. As we enter our Sun’s active period of its 11-year solar cycle, CMEs become more common and increase the chance for dazzling displays! If you have seen any aurora, you can report your sighting to the Aurorasaurus citizen science program at [aurorasaurus.org](https://aurorasaurus.org)

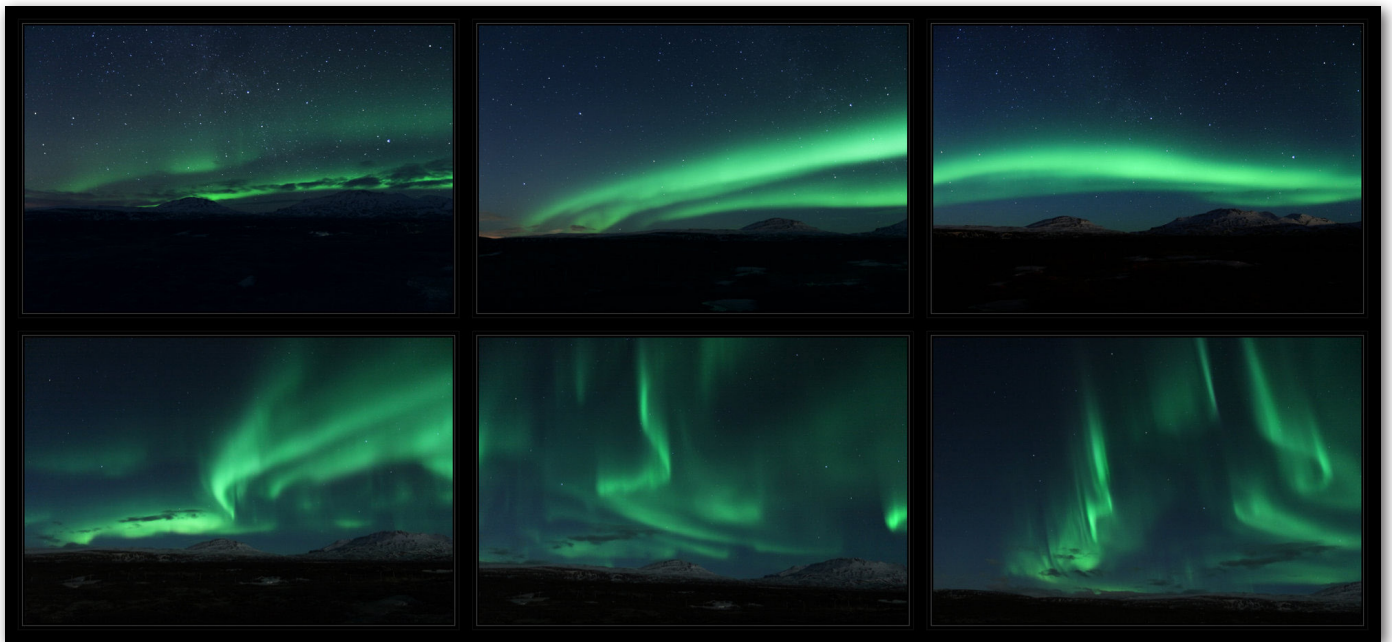
Have you ever seen wispy clouds glowing an eclectic blue after sunset, possibly towards your west or north-west? That wasn’t your imagination; those luminescent clouds are noctilucent clouds (also called Polar Mesospheric Clouds (PMC)). They are thought to form when water vapor condenses around ‘seeds’ of dust from vaporized meteorites - along with other sources that include rocket launches and volcanic eruptions - around 50 miles high in the mesosphere. Their glow is caused by the Sun, whose light still shines at that altitude after sunset from the perspective of ground-based observers. Noctilucent clouds are increasing both in frequency and in how far south they are observed, a development that may be related to climate change. Keeping in mind that observers closer in latitude to the poles have a better chance of spotting them, your best opportunity to spot noctilucent clouds occurs from about half an hour to two hours after sunset during the summer months. NASA’s AIM mission studies these clouds from its orbit high above the North Pole: [go.nasa.gov/3uV3Yj1](https://go.nasa.gov/3uV3Yj1)

You may have seen the zodiacal light without even realizing it; there is a reason it’s nicknamed the “false dawn”! Viewers under dark skies have their best chance of spotting this pyramid of ghostly light a couple of hours after sunset around the spring equinox, or a couple of hours before dawn around the autumnal equinox. Unlike our previous two examples of night lights, observers closer to the equator are best positioned to view the zodiacal light! Long known to be reflected sunlight from interplanetary dust orbiting in the plane of our solar system, these fine particles were thought to originate from comets and asteroids. However, scientists from NASA’s Juno mission recently published a fascinating study indicating a possible alternative origin: dust from Mars! Read more about their serendipitous discovery at: [go.nasa.gov/3Onf3kN](https://go.nasa.gov/3Onf3kN)

Curious about the latest research into these night lights? Find news of NASA’s latest discoveries at [nasa.gov](https://nasa.gov)



Comet NEOWISE flies high above a batch of noctilucent clouds in this photo from Wikimedia contributor Brwynog. License and source CC BY-SA 4.0 [https://commons.wikimedia.org/wiki/File:Comet\\_Neowise\\_and\\_noctilucent\\_clouds.jpg](https://commons.wikimedia.org/wiki/File:Comet_Neowise_and_noctilucent_clouds.jpg)



A sampling of some of the various patterns created by aurora, as seen from Iceland in 2014. The top row photos were barely visible to the unaided eye and were exposed for 20-30 seconds; in contrast, the bottom row photos were exposed for just 4 seconds- and were clearly visible to the photographer, Wikimedia contributor Shnuffel2022. License and source: CC BY-SA 4.0 [https://commons.wikimedia.org/wiki/File:Aurora\\_shapes.jpg](https://commons.wikimedia.org/wiki/File:Aurora_shapes.jpg)

## *NASA SpaceX Crew-4*

The public was invited to take part in virtual activities and events ahead of the launch of the Crew-4 mission, the fourth SpaceX Crew Dragon spacecraft and Falcon 9 rocket carrying astronauts to the International Space Station for NASA. The science mission is part of the agency's Commercial Crew Program. Liftoff was targeted for 5:26 a.m. EDT on Saturday, April 23, from Launch Complex 39A at NASA's Kennedy Space Center in Florida.

The launch carries three NASA astronauts – Mission Commander Kjell Lindgren, Pilot Robert Hines, and Mission Specialist Jessica Watkins, to the space station – as well as ESA (European Space Agency) astronaut Samantha Cristoforetti, who will serve as a mission specialist. This is the first spaceflight for Hines and Watkins. It is the second trip for Lindgren and Cristoforetti.



The Crew-4 astronauts will conduct research in areas such as materials science, health technologies, and plant science to prepare for human exploration beyond low-Earth orbit and benefit life on Earth. Experiments will include studies on the aging of immune systems, organic material concrete alternatives, and cardiorespiratory effects during and after long-duration exposure to microgravity. These are just some of the more than 200 science experiments and technology demonstrations that will take place during their mission.

Members of the public can register to attend the launch virtually or RSVP to the Facebook event. The virtual guest program for this launch includes curated launch resources, timely mission updates, and a virtual guest passport stamp following a successful launch.

## *Webb Telescope's Coldest Instrument Reaches Operating Temperature*

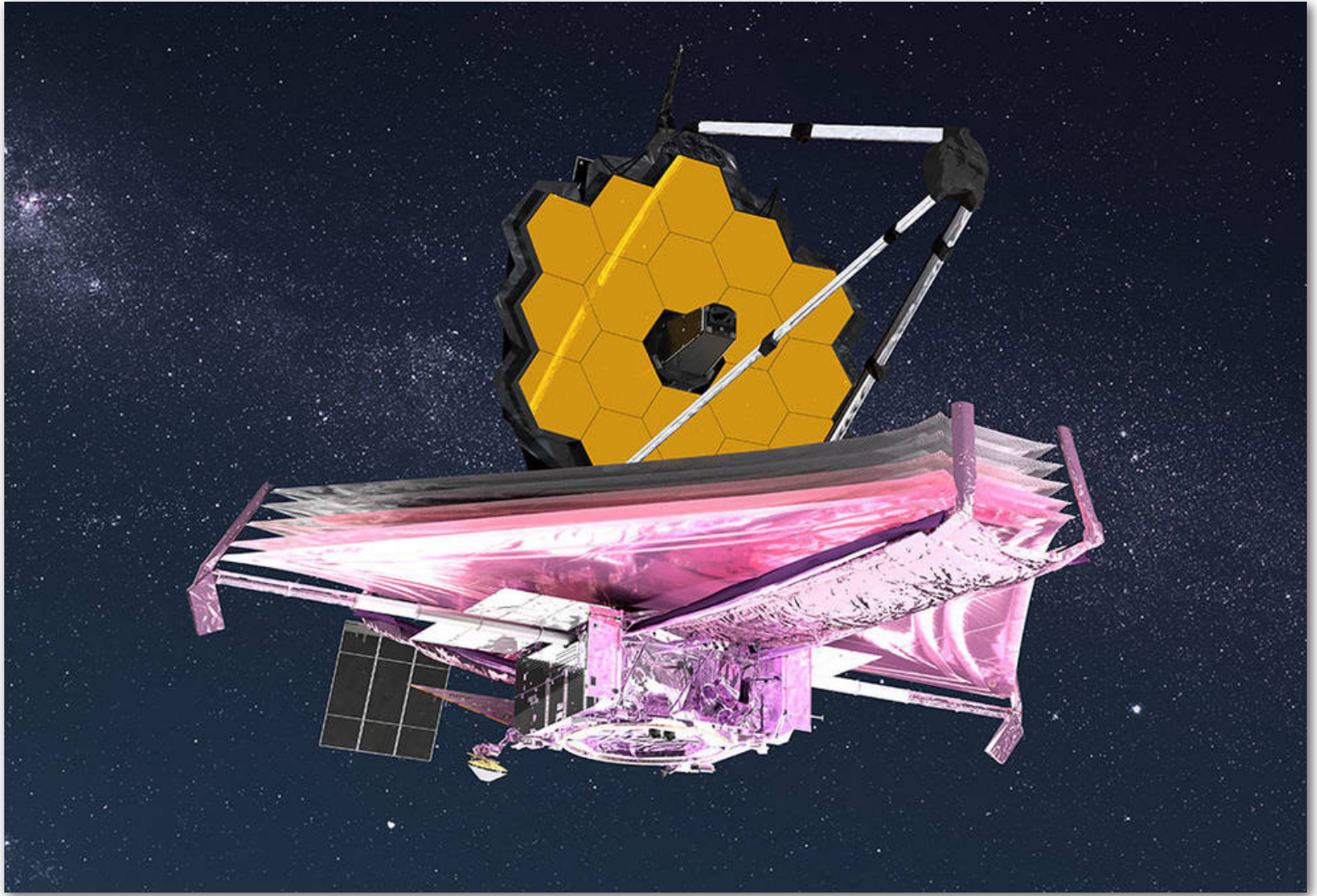
Source: <https://www.nasa.gov/feature/jpl/webb-telescope-s-coldest-instrument-reaches-operating-temperature>

**NASA's James Webb Space Telescope** will see the first galaxies to form after the big bang, but to do that its instruments first need to get cold – really cold. On April 7, Webb's Mid-Infrared Instrument (MIRI) – a joint development by NASA and ESA (European Space Agency) – reached its final operating temperature below 7 kelvins (minus 447 degrees Fahrenheit, or minus 266 degrees Celsius).

Along with Webb's three other instruments, MIRI initially cooled off in the shade of Webb's tennis-court-size sunshield, dropping to about 90 kelvins (minus 298 F, or minus 183 C). But dropping to less than 7 kelvins required an electrically powered cryocooler. Last week, the team passed a particularly challenging milestone called the "pinch point," when the instrument goes from 15 kelvins (minus 433 F, or minus 258 C) to 6.4 kelvins (minus 448 F, or minus 267 C).

"The MIRI cooler team has poured a lot of hard work into developing the procedure for the pinch point," said Anlyn Schneider, project manager for MIRI at NASA's Jet Propulsion Laboratory in Southern California. "The team was both excited and nervous going into the critical activity. In the end it was a textbook execution of the





*In this illustration, the multilayered sunshield on NASA's James Webb Space Telescope stretches out beneath the observatory's honeycomb mirror. The sunshield is the first step in cooling down Webb's infrared instruments, but the Mid-Infrared Instrument (MIRI) requires additional help to reach its operating temperature.*

procedure, and the cooler performance is even better than expected."

The low temperature is necessary because all four of Webb's instruments detect infrared light – wavelengths slightly longer than those that human eyes can see. Distant galaxies, stars hidden in cocoons of dust, and planets outside our solar system all emit infrared light. But so do other warm objects, including Webb's own electronics and optics hardware. Cooling down the four instruments' detectors and the surrounding hardware suppresses those infrared emissions. MIRI detects longer infrared wavelengths

than the other three instruments, which means it needs to be even colder.

Another reason Webb's detectors need to be cold is to suppress something called dark current, or electric current created by the vibration of atoms in the detectors themselves. Dark current mimics a true signal in the detectors, giving the false impression that they have been hit by light from an external source. Those false signals can drown out the real signals astronomers want to find. Since temperature is a measurement of how fast the atoms in the detector are vibrating, reducing the temperature

means less vibration, which in turn means less dark current.

MIRI's ability to detect longer infrared wavelengths also makes it more sensitive to dark current, so it needs to be colder than the other instruments to fully remove that effect. For every degree the instrument temperature goes up, the dark current goes up by a factor of about 10.

Once MIRI reached a frigid 6.4 kelvins, scientists began a series of checks to make sure the detectors were operating as expected. Like a doctor searching for any sign of illness, the MIRI team looks at data

describing the instrument's health, then gives the instrument a series of commands to see if it can execute tasks correctly. This milestone is the culmination of work by scientists and engineers at multiple institutions in addition to JPL, including Northrop Grumman, which built the cryocooler, and NASA's Goddard Space Flight Center, which oversaw the integration of MIRI and the cooler to the rest of the observatory.

"We spent years practicing for that moment, running through the commands and the checks that we did on MIRI," said Mike Ressler, project scientist for MIRI at JPL. "It was kind of like a movie script: Everything we were supposed to do was written down and rehearsed. When the test data rolled in, I was ecstatic to see it looked exactly as expected and that we have a healthy instrument."

There are still more challenges that the team will have to face before MIRI can start its scientific mission. Now that the instrument is at operating temperature, team members will take test images of stars and other known objects that can be used for calibration and to check the instrument's operations and functionality. The team will conduct these preparations alongside calibration of the other three instruments, delivering Webb's first science images this summer.

"I am immensely proud to be part of this group of highly motivated, enthusiastic scientists and engineers drawn from across Europe and the U.S.," said Alistair Glasse, MIRI instrument scientist at the UK Astronomy Technology Centre (ATC) in Edinburgh, Scotland. "This period is our 'trial by fire' but it is already clear to me that the personal bonds and mutual respect that we have built up over the past years is what will get us through the next few months to deliver a fantastic instrument to the worldwide astronomy community."

## NEAR INFRARED CAMERA (NIRCAM)

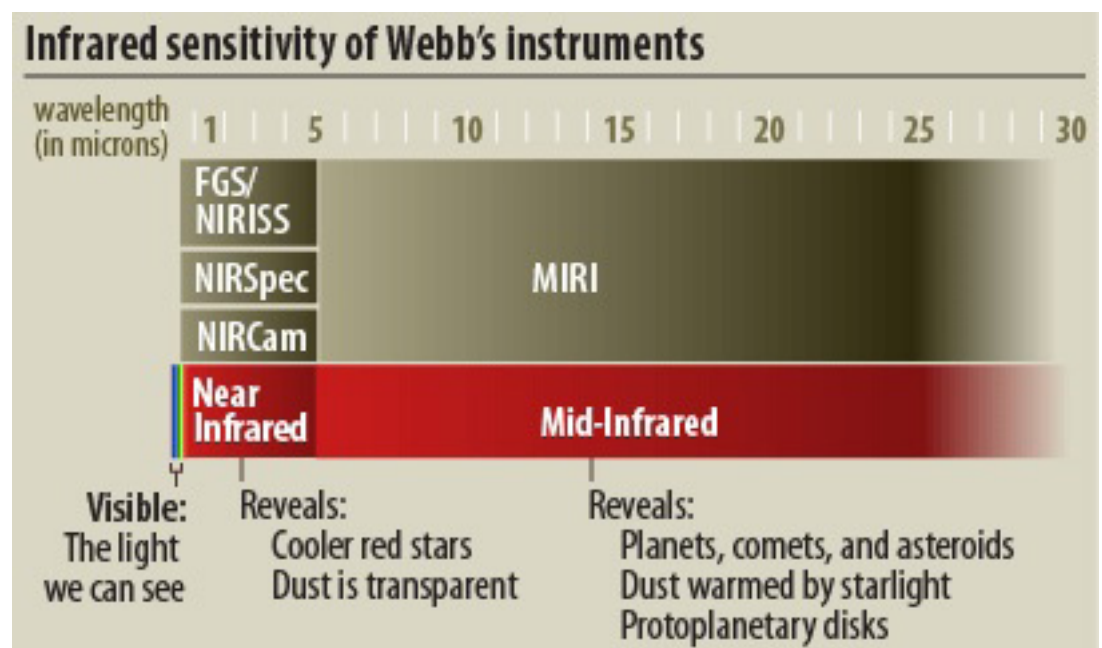
**The Near Infrared Camera (NIRCam)** is Webb's primary imager that will cover the infrared wavelength range 0.6 to 5 microns.

NIRCam will detect light from: the earliest stars and galaxies in the process of formation, the population of stars in nearby galaxies, as well as young stars in the Milky Way and Kuiper Belt objects.

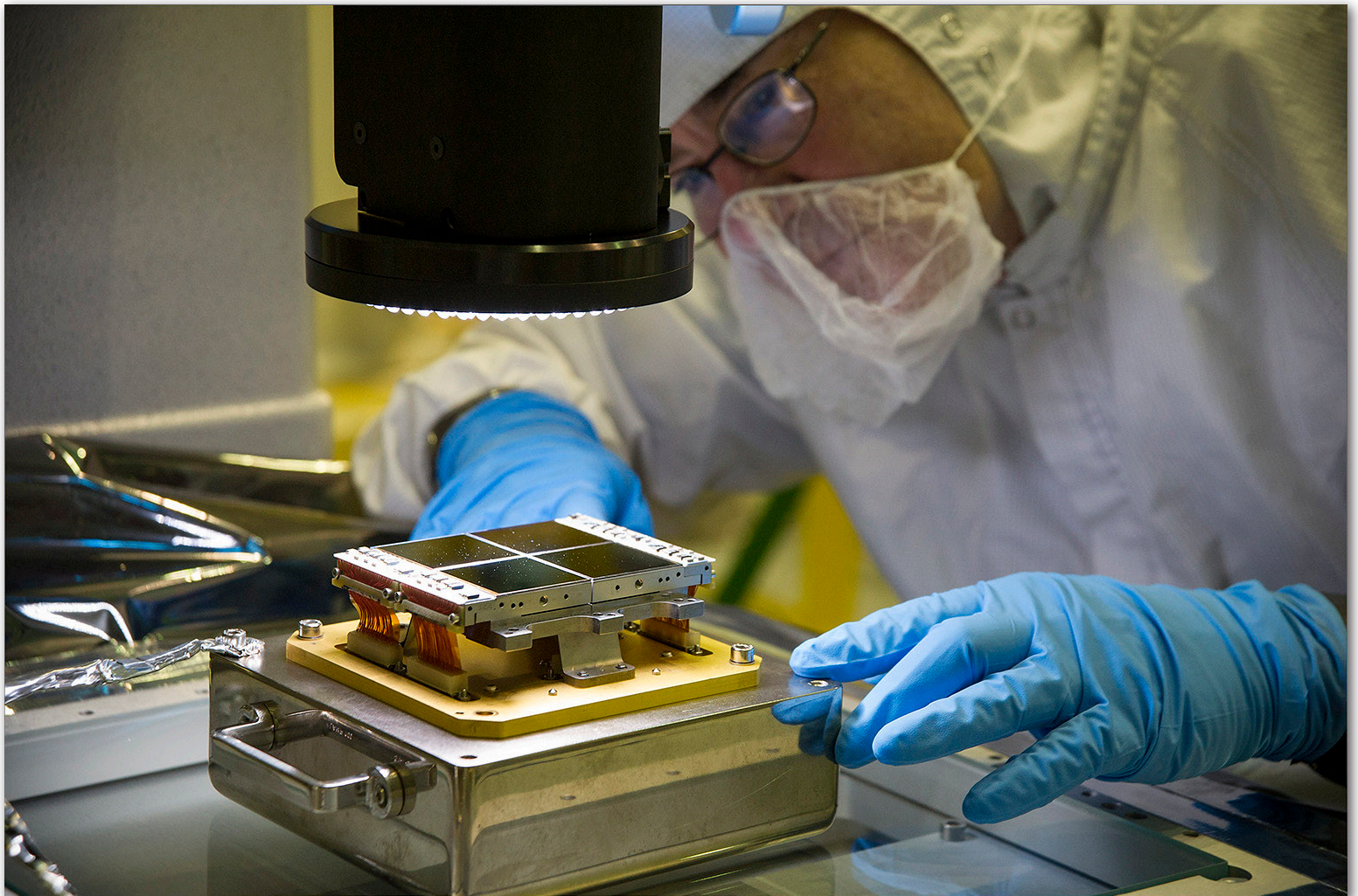
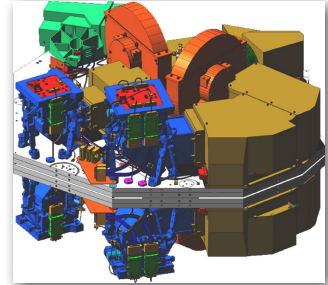
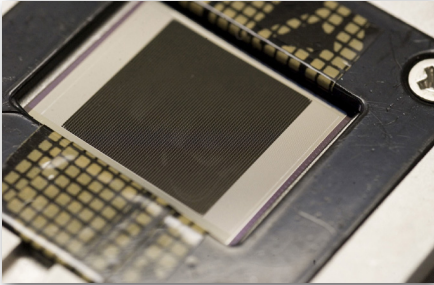
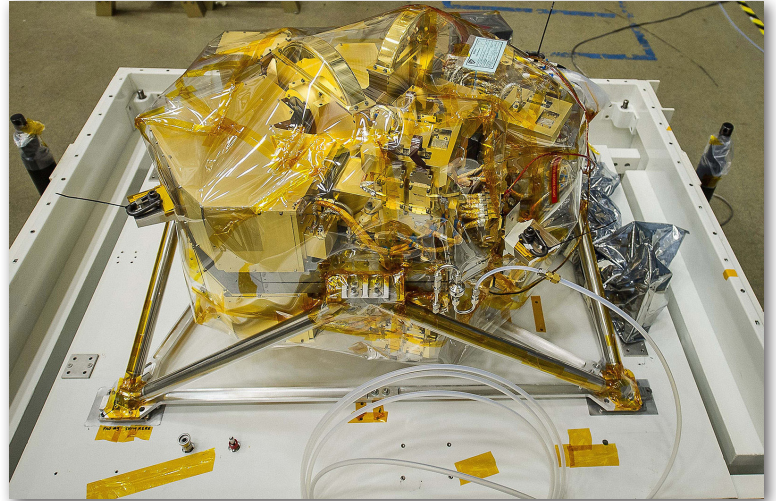
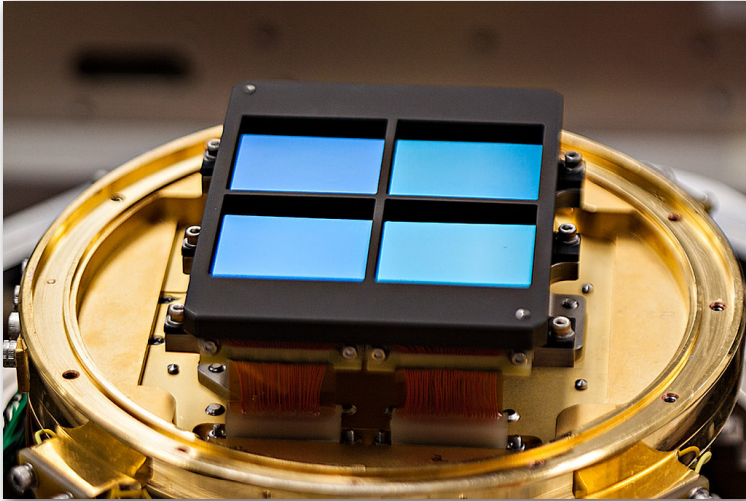
NIRCam is equipped with coronagraphs, instruments that allow astronomers to take pictures of very faint objects

around a central bright object, like stellar systems. NIRCam's coronagraphs work by blocking a brighter object's light, making it possible to view the dimmer object nearby - just like shielding the sun from your eyes with an upraised hand can allow you to focus on the view in front of you.

With the coronagraphs, astronomers hope to determine the characteristics of planets orbiting nearby stars.



# Images of the NIRCAM



## *Astrophotography (SIG)*

### *Special Interest Group*

Join Our Astrophotography Special Interest Group (SIG)  
– Mike Jensen, Group Lead

#### **REGULAR MEETINGS**

**Regular meetings have been set for the  
3rd Tuesday of each month at 6:30 on Zoom  
The next meeting is Tuesday May 17th at 6:30.**

<https://us02web.zoom.us/j/81077794455?pwd=MHJVL2VvZGZK3JyM-1d5QVjiZE1TUT09>

Meeting ID: 810 7779 4455  
Passcode: Phot@SIG



### *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 ASI AIR (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?

Now, the REALLY cool thing is that it looks like the pandemic is

FINALLY starting to ease off so that means we can finally start getting together and be safe! That means more helping each other, more show and tell, more mentorship which is exactly why we created the Astro SIG.

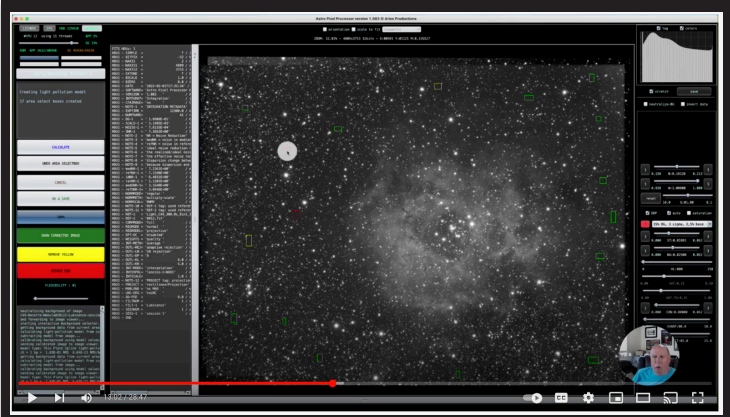
So, if you want to learn Astrophotography (like Astro 101) with a LOT of fun people, join us.

### **Star Adventurer GTi Review**

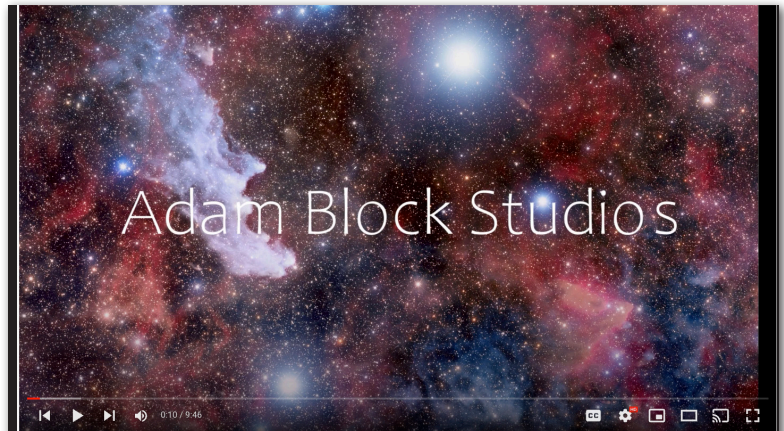


Here's Trevor from Astro Backyard reviewing the new Sky Watcher Star Adventurer GTi. Based on the excitement and the reviews, this could be the Astro product of the year! Click the image to view the video.

## Astro Photo Processing Tutorials

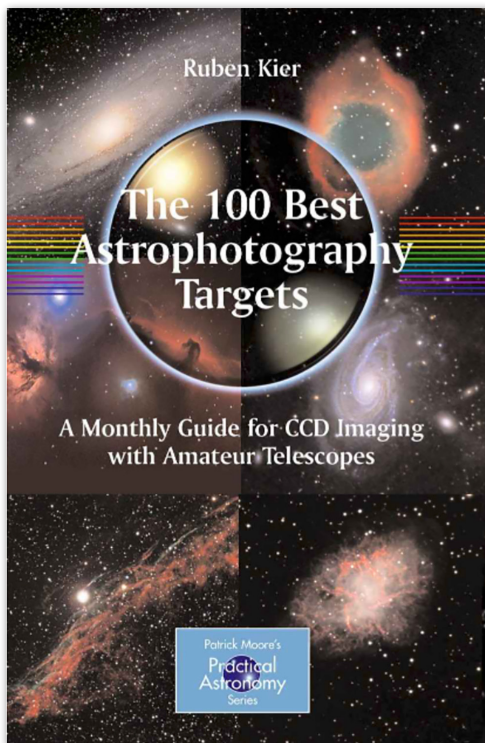


Check out Mike's tutorial on Astro Pixel Processor. Click on the image above. This video is about 30 minutes and is pretty much a "soup to nuts" instruction on how to load your shots, process, stretch and finish your image.

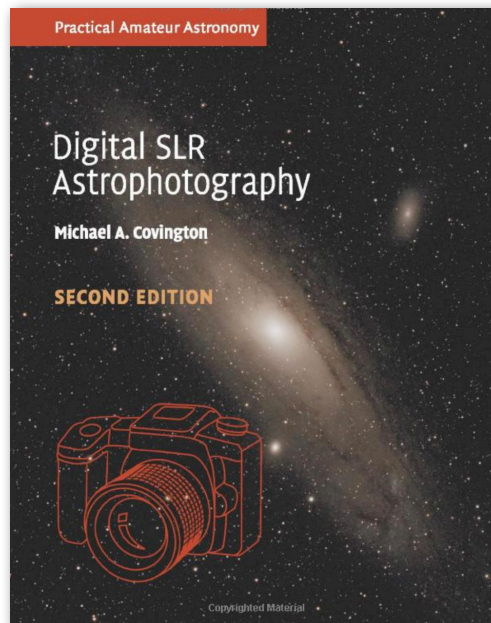


Here's a great Adam Block tutorial on the new WBPP in PixInsight. Click on the image above. This video is about 30 minutes and is pretty much a "soup to nuts" instruction on how to load your shots, process, stretch and finish your image.

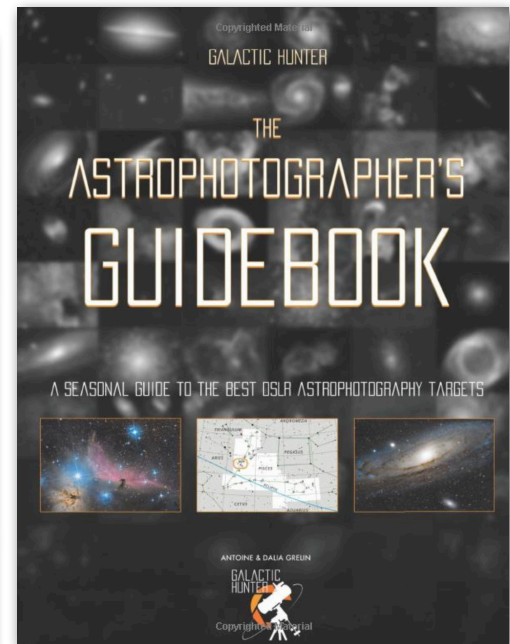
## Astro Photography Books



Any amateur astronomer who is interested in astrophotography, particularly if just getting started, needs to know what objects are best for imaging in each month of the year. These are not necessarily the same objects that are the most spectacular or intriguing visually.



Digital SLR cameras have made it easier than ever before to photograph the night sky. Whether you're a beginner, nature photographer, or serious astronomer, this is the definitive handbook to capturing the heavens. Starting with simple projects for beginners such as cameras on tripods, it then moves onto more advanced projects including telescope photography and methods of astronomical research.



Discover 60 Deep Sky Objects that will considerably improve your Imaging and Processing skills! Whether you are a beginner, intermediate, or advanced astrophotographer, this detailed book of the best deep sky objects will serve as a personal guide for years to come!

## *Astro Photos From our SIG Group*



### **The Orion Nebula by Astro Joe**

38 lights @180 seconds each, 18 darks @180each, ISO 800, Canon T7I unmodified

Skywatcher 72ed evostar .85 reducer/flattener, Eq6-R pro mount

No guiding set up yet. Big cypress dark site. Deep sky stacker for stacking.

Photo shop and pixinsight for processing.

**Rosette Nebula NGC2244** - 4/10 & 4/11/2022

Ray Bratton - Fort Myers, Florida

ZenithStar 61 II, 61A Flattener,

90 120s (3 hours), 120G, 0°C, ASI294MC Pro,

ASIAIR Plus, APP, & PS RAW



Images From Phil Jansen  
Taken in Utah





[Click here for more descriptions and better images of these targets.](#)



# The 10 Best Things To See In The Spring Night Sky



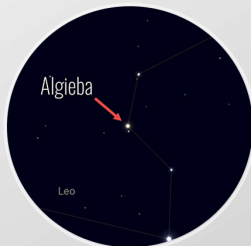
## M44

M44, the Praesepe or Beehive cluster, has been known since antiquity and is visible to the naked eye under clear, dark skies. Unusually, its magnitude (3.9) is greater than almost all of the stars within the constellation that hosts it (in this case, Cancer, the Crab.)



## M81 AND M82

Telescopically, you can fit both targets within the same field of view if you keep the magnification to below 50x. M81, a spiral galaxy, is the brighter and larger of the pair. You'll see it as a small oval with a bright central core.



## ALGIEBA

Even with low powered binoculars you'll see a bright, golden star with a blue-white companion that appears about twice as faint. Point your telescope toward it and the bright primary star can be split in half. You'll probably need a magnification of at least 75x.



## COR CAROLI

A magnification of about 30x provides a fine view, with the primary star appearing white and about three times brighter than its pale gold companion.



## M65 AND M66

A low magnification of less than 60x is required to fit both targets within the same field of view. You should see two faint, misty oval patches. M66 is slightly brighter and more oval, whereas M65 may appear more elongated and spindle shaped.



## LA SUPERBA

One of the reddest stars known and has been variously described as deep orange and blood red. As with so many things in astronomy, it's a subjective experience that impacts different observers in different ways. What color does it appear to you?



## MIZAR AND ALCOR

A telescope and a low magnification of only 25x is all you'll need to split Mizar in two. The brighter, primary star shines with a brilliant, white light, while its companion appears about twice as faint and slightly bluish.



## M3

At about 35x, you'll notice a slightly oval, misty grey patch with a bright core. This is one cluster where increasing the magnification will definitely reap rewards.



## M97

Found close to Beta Ursae Majoris (Merak), it's quite faint and just beyond the reach of most binoculars. You'll probably also be out of luck if you're observing with a small telescope under suburban skies, but if you possess the skies and the equipment, you could get lucky.



## COMA BERENICES

At a distance of 280 light-years, this is one of the closest star clusters. In comparison, M44, the Praesepe (or Beehive cluster) is some 577 light-years away, while the Owl Nebula is over 2,000.

## Nightwatch



With a new year comes new Globe at Night dates! Every year, this community-science campaign raises awareness about the impact of light pollution by inviting community scientists to measure and submit night sky brightness observations. It's a fantastic opportunity to get more involved in the dark sky movement.

Also, we hope you'll join us in welcoming a group of new members to our Board of Directors for 2022. We are really excited to introduce you to Nalayini Brito-Davies (New Zealand), Paulina Villalobos (Chile), Ken Walczak (U.S.), and Charles Mudd (U.S.).

Whether to spark a child's imagination or educate and inspire an adult to take action against light pollution, books are a fantastic tool in the fight to protect the night. So earlier this month, we shared a blog post with three newly released books about dark skies. You're going to want to check them out.

Plus, we have an exclusive deal to share with you from acclaimed photographer and conservationist Art Wolfe. His team has generously set up a special for IDA members and supporters in his store. For \$99 (normally \$150), you can receive a copy of "Night on Earth" + 8x10 print of the Milky Way over Mount Rainier by using the code IDA2022. A portion of the proceeds goes to help support IDA.

Last but not least is our January Monthly Star-IDA Delegate Carol Redford from Western Australia. We recently sat down with her for a chat. We discussed how she got started in the dark sky movement, how she has found success working with her local government, all about her "Astrotourism Towns" project, and why dark skies are important to the local culture where she lives.

Until next time,

Susan Ciarniello  
Membership Director

## Globe At Night 2022

Every year, the Globe at Night international community science campaign raises awareness about the impact of light pollution by inviting community scientists to measure and submit night sky brightness observations. All you need is a computer, tablet, or smartphone! And their webapp is now available in 28 languages!

Community science plays an important role in the fight against light pollution. It is both contributive and collaborative, allowing for experiments, explorations, and inquiries to run on a large-scale, ongoing basis. This provides scientists with much larger and more diverse data sets that might have otherwise been unachievable. In 2021, community scientists from around the world contributed more than 24,000 observations from over 90 countries to Globe at Night!

Globe at Night will be collecting observations for all twelve months of the year. This large set of measurements will be compared to measurements from prior years in the same month to provide a comprehensive view of the changes to the night sky quality worldwide. See all of the dates below:



**Globe at Night 2022**

[WWW.GLOBEATNIGHT.ORG](http://WWW.GLOBEATNIGHT.ORG)  
Get Out and Observe the Night Sky!

Engage people worldwide in observing the nighttime sky.  
Encourage students and families to participate in citizen-science with a hands-on learning activity.  
Gather light pollution data from an international perspective to monitor sky brightness and its effects.

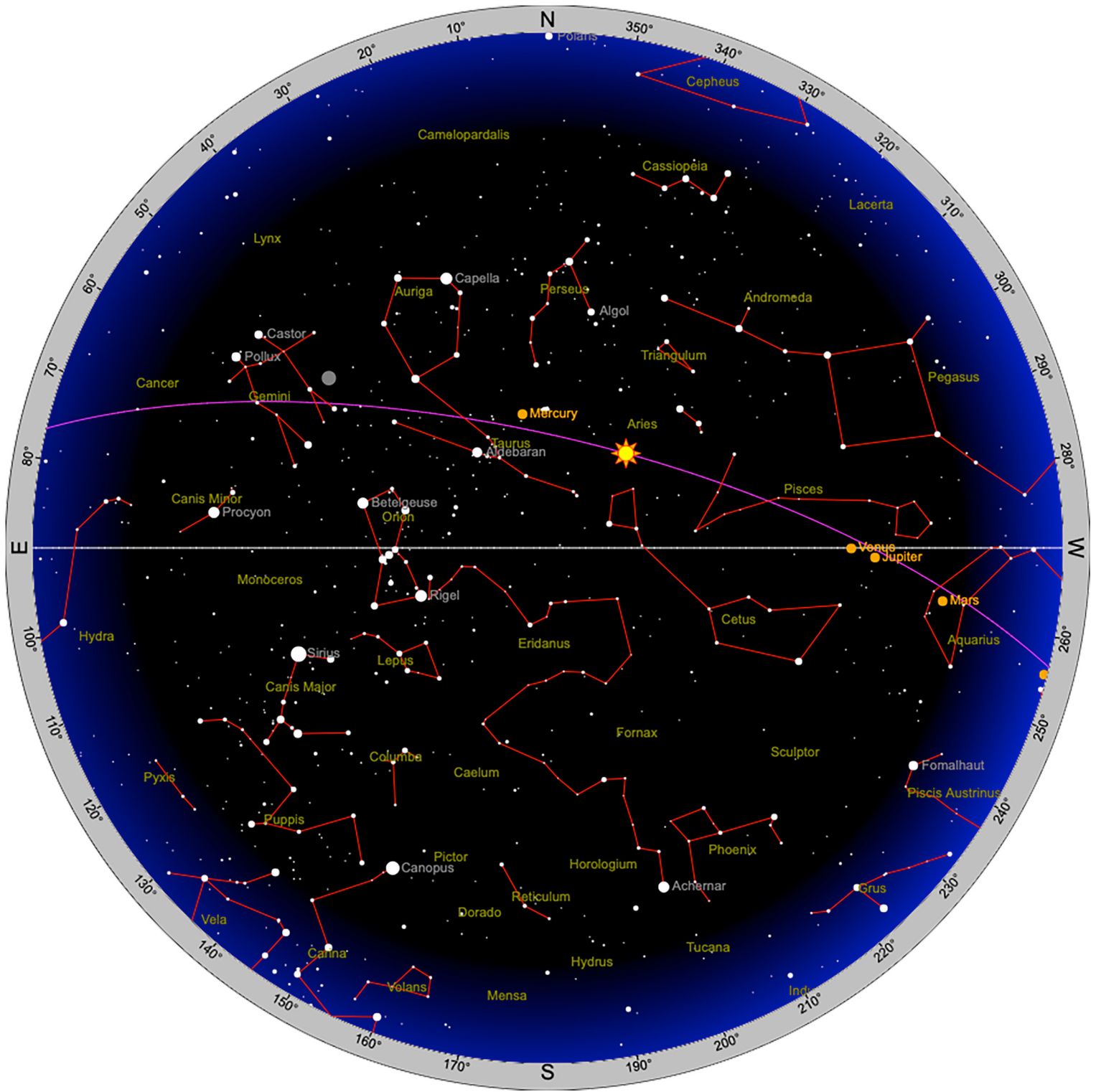
**Can you see the stars?**

Dec. 25 (2021) — Jan. 3	Jun. 19 — 28
Jan. 24 — Feb. 2	Jul. 19 — 28
Feb. 22 — Mar. 3	Aug. 18 — 27
Mar. 23 — Apr. 1	Sept. 17 — 26
Apr. 22 — May 1	Oct. 17 — 26
May 21 — 30	Nov. 16 — 25
	Dec. 15 — 24

NSF | NOIR Lab | IDA | INTERNATIONAL DARK SKY ASSOCIATION | AURA

[For more info and how to participate, click here.](http://WWW.GLOBEATNIGHT.ORG)

# May 2022 Sky Chart



## 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 April 7th but can be programmed for any date and time. The chart can also be found at [this link on Heavens Above](#).

Year  Month  Day  Time

	Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Right ascension	4 <sup>h</sup> 3 <sup>m</sup> 52.2 <sup>s</sup>	0 <sup>h</sup> 13 <sup>m</sup> 16.3 <sup>s</sup>	23 <sup>h</sup> 7 <sup>m</sup> 37.6 <sup>s</sup>	23 <sup>h</sup> 56 <sup>m</sup> 38.5 <sup>s</sup>	21 <sup>h</sup> 47 <sup>m</sup> 26.4 <sup>s</sup>	2 <sup>h</sup> 48 <sup>m</sup> 37.2 <sup>s</sup>	23 <sup>h</sup> 41 <sup>m</sup> 10.8 <sup>s</sup>	20 <sup>h</sup> 3 <sup>m</sup> 16.3 <sup>s</sup>
Declination	23° 15' 48"	-0° 12' 20"	-7° 18' 48"	-1° 32' 37"	-14° 25' 46"	15° 50' 41"	-3° 16' 43"	-22° 26' 20"
Range (AU)	0.722	1.033	1.603	5.616	10.009	20.714	30.551	34.218
Elongation from Sun	18.9°	41.8°	59.6°	46.1°	80.5°	0.4°	50.3°	106.4°
Brightness	1.4	-4.0	0.8	-2.0	0.8	5.9	7.9	14.4
Equatorial Diameter	9.31"	16.16"	5.84"	35.10"	16.60"	3.40"	2.24"	0.10"
Phase Angle	125.3°	67.3°	38.5°	8.4°	5.8°	0.0°	1.5°	1.6°
Constellation	Taurus	Pisces	Aquarius	Pisces	Capricornus	Aries	Pisces	Sagittarius
Meridian transit	13:10	09:19	08:14	09:04	06:55	11:55	08:48	05:11
Rises	07:11	03:20	02:15	03:04	00:56	05:56	02:49	23:08
Sets	19:10	15:20	14:14	15:03	12:54	17:54	14:47	11:10
Altitude	66.3°	37.1°	20.5°	33.0°	0.7°	69.0°	29.1°	-23.3°
Azimuth	11.0°	269.7°	262.2°	268.2°	255.6°	319.5°	266.2°	245.4°
Inferior Conjunction	2022-Jan-23 2022-May-21	2022-Jan-09 2023-Aug-13	-	-	-	-	-	-
Opposition	-	-	2020-Oct-13 2022-Dec-08	2021-Aug-20 2022-Sep-26	2021-Aug-02 2022-Aug-14	2021-Nov-04 2022-Nov-09	2021-Sep-14 2022-Sep-16	2021-Jul-17 2022-Jul-20
Superior Conjunction	2022-Apr-02 2022-Jul-16	2021-Mar-26 2022-Oct-22	2021-Oct-08 2023-Nov-18	2022-Mar-05 2023-Apr-11	2022-Feb-04 2023-Feb-16	2022-May-05 2023-May-09	2022-Mar-13 2023-Mar-15	2022-Jan-16 2023-Jan-18
Max. eastern elongation	2022-Apr-29 2022-Aug-27	2021-Oct-29 2023-Jun-04	-	-	-	-	-	-
Max. western elongation	2022-Feb-16 2022-Jun-16	2022-Mar-20 2023-Oct-23	-	-	-	-	-	-
Perihelion	2022-Apr-13 2022-Jul-10	2022-Jan-23 2022-Sep-04	2020-Aug-03 2022-Jun-21	2011-Mar-17 2023-Jan-20	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	2022-Feb-28 2022-May-27	2021-Oct-03 2022-May-15	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

## Total Lunar Eclipse May 16th

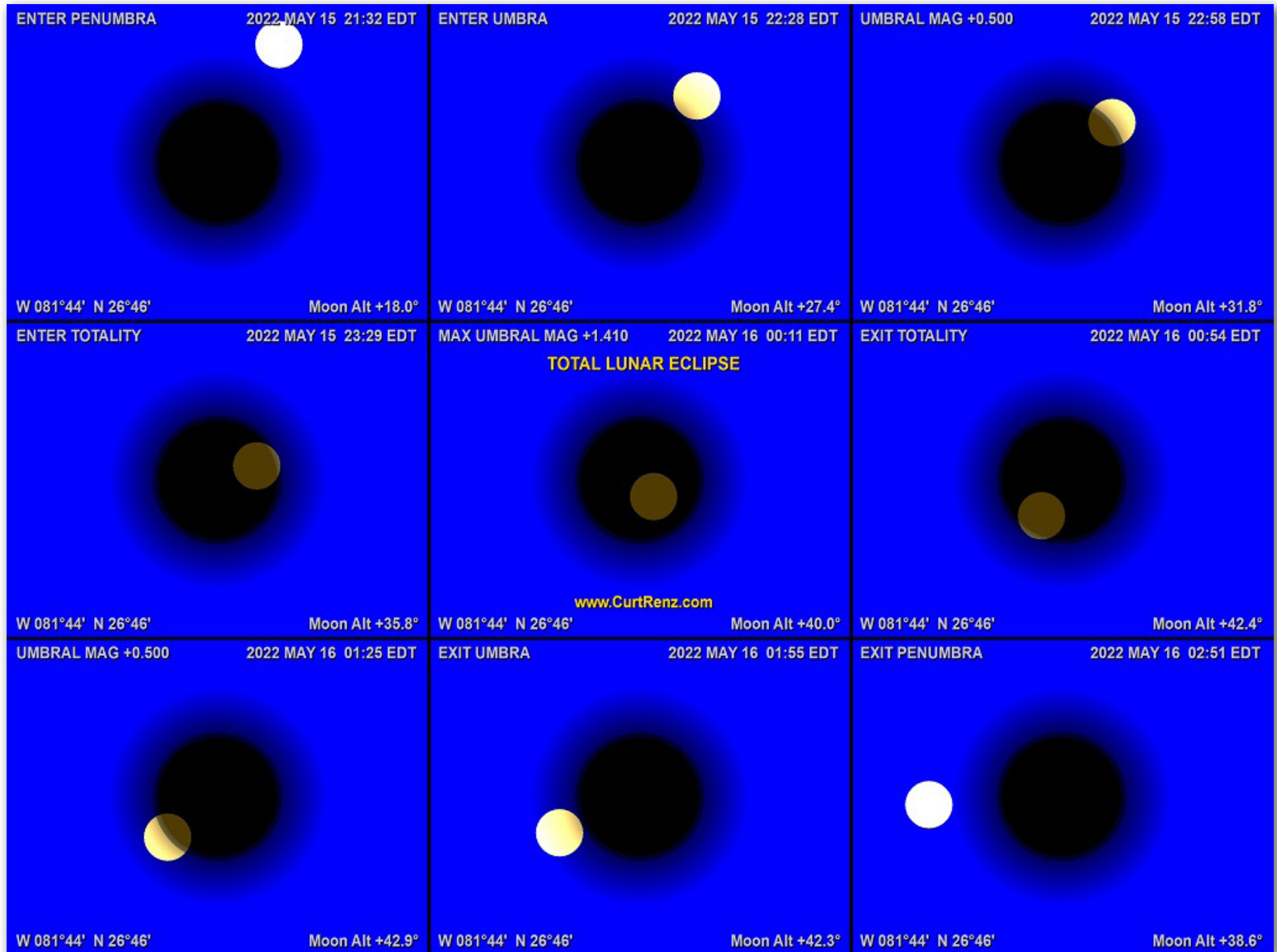
A total lunar eclipse will take place on 16 May 2022, the first of two total lunar eclipses in 2022. A second eclipse will happen on 8 November. The eclipse will be a dark one with the northern tip of the Moon passing through the center of the Earth's shadow. This is the first central eclipse of Saros series 131.

This eclipse series began in AD 1427 with a partial eclipse at the southern edge of the Earth's shadow when the Moon was close to its descending node. Each successive Saros cycle, the Moon's orbital path is shifted northward with respect to the Earth's shadow, with the first total eclipse occurring in 1950. For the following 252 years, total eclipses occur, with the central eclipse being predicted to occur in 2078. The first partial eclipse after this is predicted to occur in the year 2220, and the final partial eclipse of the series will occur in 2707. The total lifetime of the lunar Saros series 131 is 1280 years. Solar Saros 138 interleaves with this lunar saros with an event occurring every 9 years 5 days alternating between each saros series.

Because of the fraction of days in a Saros cycle, the visibility of each eclipse will differ for an observer at a given fixed locale. For the lunar Saros series 131, the first total eclipse of 1950 had its best visibility for viewers in Eastern Europe and the Middle East because mid-eclipse was at 20:44 UT. The following eclipse in the series occurred approximately 8 hours later in the day with mid-eclipse at 4:47 UT, and was best seen from North America and South America. The third total eclipse occurred approximately 8 hours later in the day than the second eclipse with mid-eclipse at 12:43 UT, and had its best visibility for viewers in the Western Pacific, East Asia, Australia and New Zealand. This cycle of visibility repeats from the initiation to termination of the series, with minor variations. Solar Saros 138 interleaves with this lunar saros with an event occurring every 9 years 5 days alternating between each saros series.

Lunar Saros series 131, repeating every 18 years and 11 days, has a total of 72 lunar eclipse events including 57 umbral lunar eclipses (42 partial lunar eclipses and 15 total lunar eclipses). Solar Saros 138 interleaves with this lunar saros with an event occurring every 9 years 5 days alternating between each saros series.

Graphic below courtesy of Curt Renz. <https://www.curtrenz.com/eclipses.html>



## *Monthly Meeting Minutes*

### **Minutes of the Southwest Florida Astronomical Society – April 7, 2022**

The regular monthly business meeting of the Southwest Florida Astronomical Society, held in the Calusa Nature Center Planetarium and via Zoom conference, was called to order at 7:32pm by president Brian Risley. There were 19 present in the Planetarium, and 10 Zoom participants.

The past events listed in the printed agenda were discussed.

Upcoming events listed in the printed agenda were discussed.

Tom Segur spoke about night and solar observing events in Charlotte County.

Joe Dermody presented the program on NASA's Artemis program to return to the Moon.

At 8:32pm the business meeting resumed.

A 7 inch Maksutov telescope has been donated.

Bill Shaffner donated 100mm binoculars.

Mike Jensen reported on the Astrophotography special interest group. Monthly meetings are held on Zoom. Contact Mike if interested.

John MacLean reported on a recent board meeting held to discuss programs and increasing attendance at the monthly meetings. John researched some active, thriving clubs to discover some actions that have been successful for them. Two specific suggestions were to have the program presentation early in the meeting (as was done tonight) and have the topics of programs publicized well in advance. The possibility of having paid presenters was discussed. A survey was e-mailed to the membership to solicit opinions and ideas. Send any suggestions to John.

Website coordinator Mike Jensen asked for approval to change the website hosting, add SSL to the website to make it more secure, and add PayPal authorization. John MacLean made a motion, seconded by Mike McCauley, to approve changing the hosting site and establishing a PayPal account. The motion passed on a voice vote. John MacLean made a motion, seconded by Mike McCauley, to approve a \$100 expenditure to obtain SSL licensing. The motion passed on a voice vote.

Mike McCauley announced that a Naples day camp is requesting an astronomy presentation in June. Contact Mike if able to help with this.

The March meeting minutes will be reviewed at next month's meeting.

Treasurer John MacLean presented the Treasurer's report. \$300 in dues came in and there were no expenditures. The March ending balance is \$3440.93. Mike McCauley made a motion, seconded by Roxanne Riley, to approve the report. The motion passed.

Equipment coordinator Brian Risley will be ordering the part to repair the CPC 1100.

AL coordinator John MacLean reported everything is up to date.

Tom Segur announced there will be Charlotte County observing events on May 6 and 15.

Mike McCauley announced the Nature Center speaker series is ongoing. Check their newsletter or website.

The meeting concluded at 9:49pm.

Submitted by Don Palmer, secretary.