

The Eyepiece



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



Hi Everyone!
Well, we finally got the Webb Space Telescope launched!

Speaking as an Astrophotographer, I can't wait to see what kind of images it will come up with.

It launched Christmas morning and as of this writing it is in the process of deploying. The key task being of unfurling a giant umbrella-like shield to protect its delicate instruments from the intense radiation of the sun. **Go to page 6 for video links to the launch and deployment.**

There's plenty of good info in this edition. Star chart, planet positions, info on the Astro SIG group, NASA News and much, much more!

Also, don't forget, it's time to pay your 2022 dues. Only \$25!

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.

Jan 7, 2022
Feb 4, 2022
Mar 4, 2022
Apr 1, 2022
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
941-249-8726

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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! The live group will meet at the Calusa Planetarium and Zoom will meet on the link below.

JANUARY 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
2 New Moon ✓	3	4	5	6 General Meeting 7:30 pm ✓	7 Observatory Viewing ✓	8
9	10	11	12	13	14	15 Solar Observing ✓
16	17 Full Moon ✓	18 Astro SIG 6:30 pm ✓	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

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

So, mark your calendar for:

Feb. 3rd, 2022

How to use Zoom.

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

[Join Zoom Meeting:](#)

<https://widener.zoom.us/j/96276630185>

[Meeting ID: 962 7663 0185](#)

[One tap mobile:](#)

[+13126266799,,96276630185#](tel:+13126266799,,96276630185#) (or)

[+16465588656,,96276630185#](tel:+16465588656,,96276630185#)

2. 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.

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

I hope everyone had a good holiday season and a Happy New Year. We had our first star party at Seahawk Park on Dec 11th.

We had a number of members show up. As there was no public announcement of it, the turnout was good. Several members had issues they were having with their scopes worked out. It was nice to see people face to face.

We are currently planning on the following dates for Seahawk Park star parties: 1/8/2022, 1/25/2022, 3/26/2022, 4/9/2022, 4/30/2022, 5/21/2022. I will be out of town 1/8, so I need someone else to coordinate that one. (I can supply the letter from the city giving us permission to be at the park after hours. I can also supply some handouts.) Please let me know ASAP if you can help coordinate. We can then see about getting the info out to the public for January.

Phil Jansen provided a laptop for presentations/zoom meetings. My laptop melted down during the December presentation by Alex Bratton. He has graciously accepted our offer to try again at the January meeting.

With Mike Jensen's help we now have an online member application form on the website. Currently checks still need to be mailed. We are looking into electronic payments.

Program Presentation

Digital Astronomy with a Unistellar eVscope - This Changes Everything

In December we had some technical difficulties bringing Alex Bratton to you, so Alex has agreed to present again this month.

Alex will share his personal journey into digital telescopes (the [Unistellar eVscope](#) in particular), how they work, how they're making astronomy more accessible, key advantages (like zero to observing in less than 5 mins) and where these changes are likely taking astronomy in general. Clouds permitting we'll do some live viewing during the talk as well.



Club Officers & Positions

President/Equipment
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Heather Preston
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Astrophotography (SIG)

Special Interest Group

Join Our New 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 January 18th at 6:30.*

<https://us02web.zoom.us/j/81077794455?pwd=MHJVL2VvZGZRK3JyM1d5QVJiZE1TUT09>

Meeting ID: 810 7779 4455

Passcode: Phot@SIG

DECEMBER

TARGET OF THE MONTH

New to the SIG this month is the
TARGET OF THE MONTH

The target of the month gives our
Astro SIG members a known target
that is good for that month. This is
something new to the SIG and we
hope it will catch on.

Object Designation: IC434, or B33

Also known as:

The Horsehead Nebula

Constellation: Orion

Object Type: Dark Nebula

Distance: 1,500 light-years away

Magnitude: 6.8

Discovered in: 1888

The Horsehead on the right was
imaged by Linwood Ferguson.
This was imaged in narrow band
in March of 2021 using the SHO
pallet. [More info here.](#)

*January Target of the Month is The
Great Orion Nebula.
Get shooting.*



Recent Astro SIG Images

M45 - The Pleiades

Image by Mike Jensen

LRGBHa - 5 minute exposures

The Pleiades also known as The Seven Sisters, Messier 45, and other names by different cultures, is an asterism and an open star cluster containing middle-aged, hot B-type stars in the north-west of the constellation Taurus. It is among the star clusters nearest to Earth, it is the nearest Messier object to Earth, and is the cluster most obvious to the naked eye in the night sky.

The cluster is dominated by hot blue and luminous stars that have formed within the last 100 million years. Reflection nebulae around the brightest stars were once thought to be left over material from their formation, but are now considered likely to be an unrelated dust cloud in the interstellar medium through which the stars are currently passing.



NGC 281 -

The Pacman Nebula

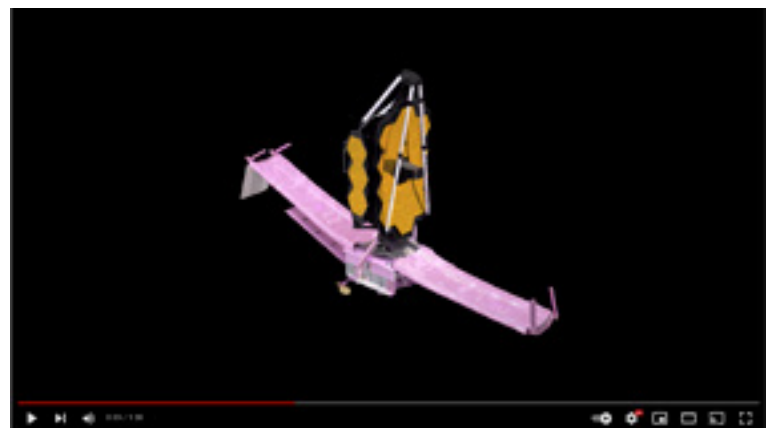
Image by Linwood Ferguson

The PacMan nebula is a bright emission nebula in Cassiopeia at about 9500 light years from earth. This image is taken with a C11 with focal reducer (0.7x) at F7, over many nights (interrupted by clouds) from 10/14/2021 to 11/25/2021. It has 144 exposures of Ha at 300s each, 144 exposures of Sii at 300s, and 128 exposures of O-iii at 300s for a total of 34.6 hours of integration. The rendering is in the SHO pallet, with Ha used as a synthetic luminance.

The Crab Nebula taken by Linwood Ferguson on numerous nights in late Nov - Dec. Shot in narrowband with a C11.

199x300 seconds of Ha
202x300 seconds of Sii
181x 300 seconds of Oii

About 48 hours of light.



Click on the images to see videos of the Webb Telescope launch and deployment.

NASA Launches Webb Telescope

Launch Date

Webb's launch was Christmas morning.

Launch Vehicle

The James Webb Space Telescope will be launched on an Ariane 5 rocket. The launch vehicle is part of the European contribution to the mission. The Ariane 5 is one of the world's most reliable launch vehicles capable of delivering Webb to its destination in space. The European Space Agency (ESA) has agreed to provide an Ariane 5 launcher and associated launch services to NASA for Webb. The Ariane 5's record for successful consecutive launches is 80 (as of June 28, 2017).

Launch Location

Webb will be launched from Arianespace's ELA-3 launch complex at European Spaceport located near Kourou, French Guiana. It is beneficial for launch sites to be located near the equator - the spin of the Earth can help give an additional push. The surface of the Earth at the equator is moving at 1670 km/hr.

Additional Details

The Launch Segment has 3 primary components:

1. Launch Vehicle: an Ariane 5 with the cryogenic upper stage. It will be provided in the single launch configuration, with a long payload fairing providing a maximum 4.57 meter static diameter and useable

length of 16.19 meters.

2. Payload Adapter, comprising the Cone 3936 plus ACU 2624 lower cylinder and clamp-band, which provides the separating mechanical and electrical interface between the Webb Observatory and the Launch Vehicle.

3. Launch campaign preparation and launch campaign. The launch campaign preparation and launch campaign is the mutual responsibility of NASA, ESA, NGAS, and Arianespace.

Webb Launch Configuration
For the telescope to fit into the rocket, it must fold up. These images show how it fits into the rocket



fairing. Images courtesy of [Ariane-Space.com](https://www.arianespace.com).



NASA News

In 2021, NASA completed its busiest year of development yet in low-Earth orbit, made history on Mars, continued to make progress on its Artemis plans for the Moon, tested new technologies for a supersonic aircraft, finalized launch preparations for the next-generation space telescope, and much more – all while safely operating during a pandemic and welcoming new leadership under the Biden-Harris Administration.

“At NASA, we turn science fiction into science fact, and we do it daily. From continuing to launch astronauts to the International Space Station from American soil to landing the Perseverance rover on Mars and logging the first flight on another planet, 2021 was a banner year for the world’s premier space agency and all of humanity,” said NASA Administrator Bill Nelson, who was sworn into office May 3 by Vice President Kamala Harris. “Next year, NASA will accomplish more daring feats with new discoveries and technological advancements, especially as our Artemis I mission paves the way for future crewed missions to the Moon – and beyond.”

Among the many science accomplishments for the year, NASA continued preparations to launch the James Webb Space Telescope on Dec. 24 from French Guiana, successfully landed the

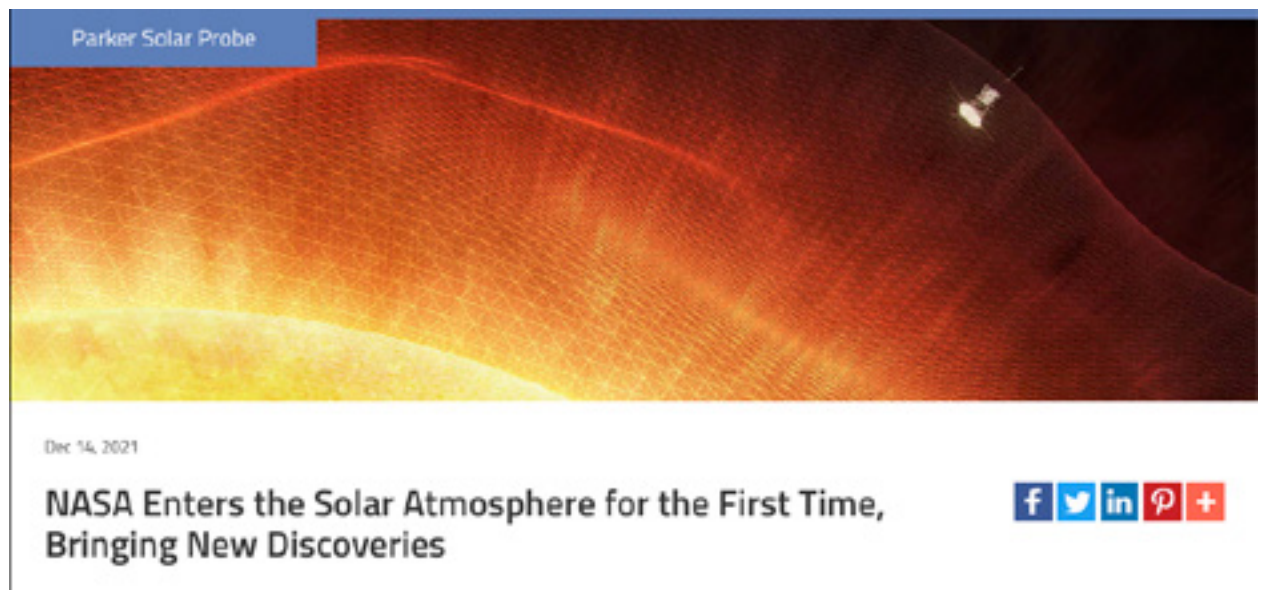
Click image below to watch video. Internet connection needed.



Perseverance rover on the surface of Mars, and piloted the Ingenuity Mars Helicopter – the first powered, controlled flight on another planet.

NASA welcomed back to Earth the first two sets of commercial crew astronauts to complete expedition missions aboard the International Space Station and launched Crew-3 to the orbiting laboratory. During the Crew-2 mission, astronauts spent a U.S. record-setting 199 days in orbit, surpassing the 168 days set by Crew-1 mission earlier this year.

The agency advanced plans to explore more of the Moon through Artemis, pledging to send the first woman and first person of color to the lunar surface. To pave the way for future lunar missions with crew, NASA completed stacking of its Space Launch System rocket, with its Orion spacecraft for the Artemis I mission launching in spring 2022. In addition to other highlights, NASA also picked SpaceX to continue the development and demonstration of the first commercial human lunar lander.



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 linking to your digital copy of the December 2021 Quarterly Reflector magazine on around December 6, You can also directly access copies via the web at <https://www.astroleague.org/reflector>

Monthly highlight of the Astronomical League Observing Programs

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, so this is an excellent time to begin observations of the Sun if you haven't done so already, Observing the sun over the next 3-4 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:

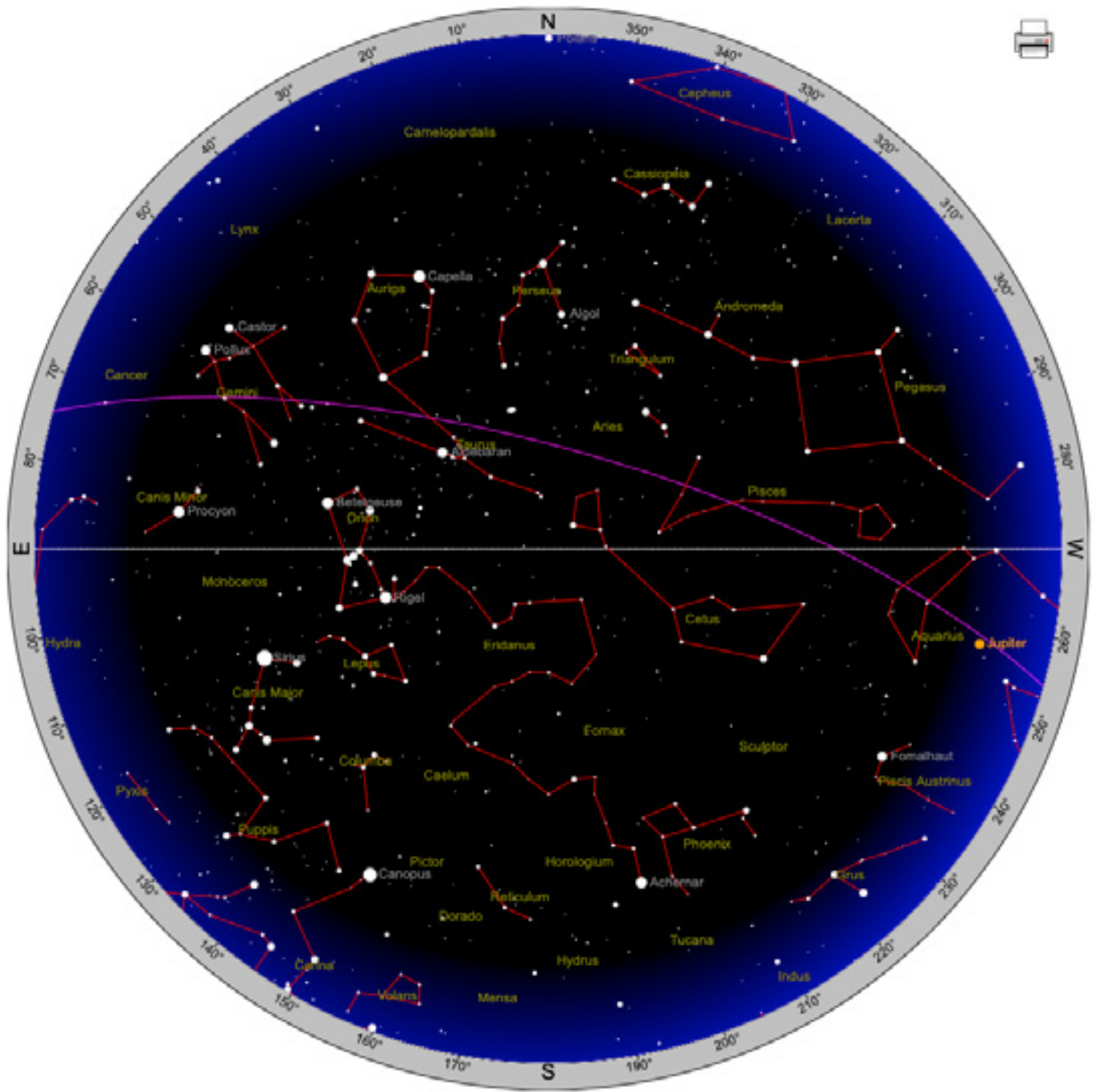
Jenkins, J. L., **The Sun and How to Observe It**, Springer-Verlag

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

Star 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 Sept. 1st 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	20 ^h 5 ^m 58.0 ^s	19 ^h 35 ^m 32.3 ^s	16 ^h 47 ^m 42.0 ^s	22 ^h 11 ^m 18.6 ^s	20 ^h 57 ^m 32.9 ^s	2 ^h 33 ^m 23.2 ^s	23 ^h 26 ^m 26.2 ^s	19 ^h 51 ^m 56.1 ^s
Declination	-22° 4' 9"	-18° 29' 48"	-22° 32' 17"	-12° 15' 45"	-18° 4' 13"	14° 37' 38"	-4° 51' 13"	-22° 42' 26"
Range (AU)	1.125	0.272	2.337	5.576	10.753	19.218	30.253	35.384
Elongation from Sun	18.0°	12.0°	27.7°	49.4°	30.7°	119.6°	69.4°	14.7°
Brightness	-0.7	-4.1	1.5	-2.0	0.7	5.7	7.9	14.4
Equatorial Diameter	5.98"	61.31"	4.01"	35.35"	15.46"	3.67"	2.26"	0.09"
Phase Angle	58.1°	163.5°	17.3°	8.6°	2.9°	2.5°	1.8°	0.4°
Constellation	Sagittarius	Sagittarius	Ophiuchus	Aquarius	Capricornus	Aries	Aquarius	Sagittarius
Meridian transit	13:20	12:51	10:02	15:26	14:13	19:48	16:41	13:07
Rises	07:20	06:53	04:03	09:27	08:13	13:49	10:42	07:08
Sets	19:20	18:50	16:02	21:25	20:12	01:51	22:40	19:06
Altitude	12.4°	5.5°	-33.0°	43.5°	25.0°	65.2°	63.2°	9.2°
Azimuth	247.4°	251.4°	242.8°	253.0°	250.0°	53.1°	259.2°	247.0°
Inferior Conjunction	2021-Oct-09 2022-Jan-23	2020-Jun-03 2022-Jan-09	-	-	-	-	-	-
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	2021-Nov-29 2022-Apr-02	2021-Mar-26 2022-Oct-22	2021-Oct-08 2023-Nov-18	2021-Jan-29 2022-Mar-05	2021-Jan-24 2022-Feb-04	2021-Apr-30 2022-May-05	2021-Mar-11 2022-Mar-13	2021-Jan-14 2022-Jan-16
Max. eastern elongation	2021-Sep-14 2022-Jan-07	2021-Oct-29 2023-Jun-04	-	-	-	-	-	-
Max. western elongation	2021-Oct-25 2022-Feb-16	2020-Aug-13 2022-Mar-20	-	-	-	-	-	-
Perihelion	2021-Oct-19 2022-Jan-15	2021-Jun-12 2022-Jan-23	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	2021-Dec-02 2022-Feb-28	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

FOR SALE - \$2,500

Meade classic LX200 EMC 12" F10 UHC classic scope in excellent condition. Meade Ultra High Contrast coatings

California built, I have had this scope for ~20 years and it is time for it to go to a new home. It's been sitting in the original box for many years, in my bedroom closet. I'm not using it enough to justify keeping.



Includes Meade field tripod, controller revision 3.21.

Also includes Telrad finder and the original finder that came with the scope.

I updated the focuser knob, forgot the name of the kit, but it is nice. Includes a 12" dew shield which I understand is a hard to find item.

Buyer pays for shipping and insurance. I have the original box and foam packaging. The original cardboard is deteriorated, but the foam is good for shipment.

Contact Michael Neal at 801-792-9595

Nightwatch



Since we last checked in with you, the islands of Pellworm and Spiekeroog in Germany were designated as Star Islands and International Dark Sky Communities. Then in Scotland, North Ronaldsay of the Orkney Archipelago was also recognized as a Dark Sky Island and an International Dark Sky Community.

Additionally, we are pleased to announce that Aparna Venkatesan is a keynote speaker for our 2021 Under One Sky Conference. The virtual event will take place across 24 hours from November 12-13. We will have more details for you soon!

In case you missed it, staggering new research led by the University of Exeter shows that light pollution has increased by at least 49% over 25 years globally. This figure only accounts for light visible via satellites. So, the actual increase may be significantly higher – up to 270% globally, and even 400% in some regions. These figures underscore the importance of our work.

We recently gave Nightscape a fresh new look! We are delighted to bring you all a sneak peek of the digital version of the newly redesigned Nightscape Magazine with Issue #105. Nightscape is our award-winning publication that provides current news about the International Dark-Sky Association and night sky protection with in-depth articles on IDA programs, light pollution issues, and efforts to protect the night exclusively for our members.

On the heels of the exciting news that the city of Pittsburgh (Pennsylvania, USA) adopted a dark sky lighting ordinance, we sat down for a Q&A with IDA advocate and Pittsburgh chapter member Diane Turnshek. She told us about the ordinance, her challenges as an advocate, what she has found to be successful, and why this work is important to her.



Spiekeroog and the Milky Way over the island. Picture credit: Kai Kröger

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 to find local clubs, events, and more!

Hunting the Hunter: Observing Orion

David Prosper

If you are outside on a clear January night, it's hard not to notice one distinctive star pattern above all: Orion! While we've covered Orion in earlier articles, we've never discussed observing the constellation as a whole. Perhaps you've received a new telescope, camera, or binoculars, and are eager to test it out. Orion, being large, prominent, and full of interesting, bright objects, is a perfect constellation to test out your new equipment and practice your observing skills - for beginners and seasoned stargazers alike.

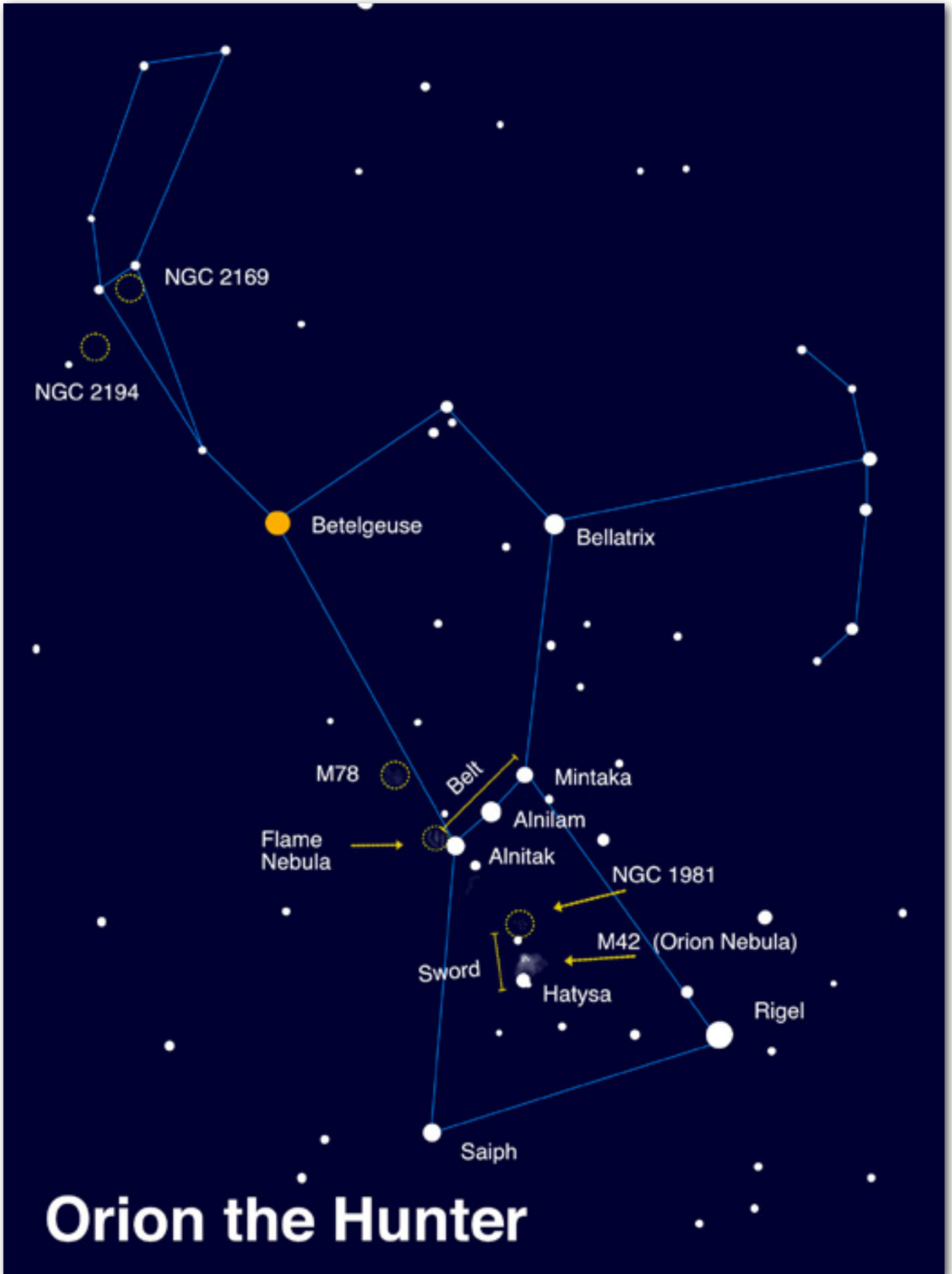
In Greek mythology, Orion is a strong hunter, with numerous legends about his adventures. Being such a striking group of stars, cultures from all around the world have many myths about this star pattern. There are so many that we can't list them all here, but you can find a wonderful interactive chart detailing many cultures' legends on the Figures in the Sky website at figuresinthesky.visualcinnamon.com.

What sights can you see in Orion? Look above the variable orange-red supergiant "shoulder star" Betelgeuse to find the stars making up Orion's "club," then move across from Betelgeuse towards the bright star Bellatrix (Orion's other "shoulder") and the stars of his bow and arrow - both essential tools for the Hunter. Many interesting sights lie near Orion's "belt" and "sword." Orion's belt is made up of three bright giant stars forming an evenly spaced line: Alnitak, Alnilam, and Mintaka. Move from the belt stars towards the stars Rigel and Saiph (Orion's "feet" or "knees") to arrive at Orion's distinctive Sword, parts of which may appear fuzzy to your unaided eyes. Binoculars reveal that fuzz to be the famed Orion Nebula (M42), perched right next to the star Hatysa! Diving in deeper with a telescope will show star clusters and more cloud detail around the Nebula, and additional magnification brings out further detail inside the nebula itself, including the "baby stars" of the Trapezium and the next-door neighbor nebula M43. Want to dive deeper? Dark skies and a telescope will help to bring out the reflection nebula M78, the Flame Nebula (NGC 2024), along with many star clusters and traces of dark nebula throughout the constellation. Very careful observers under dark clear skies may be able to spot the dark nebula known as the Horsehead, tracing an equine outline below both the Belt and the Flame Nebula. Warning: the Horsehead can be a difficult challenge for many stargazers, but very rewarding.

This is just a taste of the riches found within Orion's star fields and dust clouds; you can study Orion for a lifetime and never feel done with your observations. To be fair, that applies for the sky as a whole, but Orion has a special place for many. New telescopes often focus on one of Orion's treasures for their first test images. You can discover more of NASA's research into Orion's stars - as well as the rest of the cosmos - online at nasa.gov.

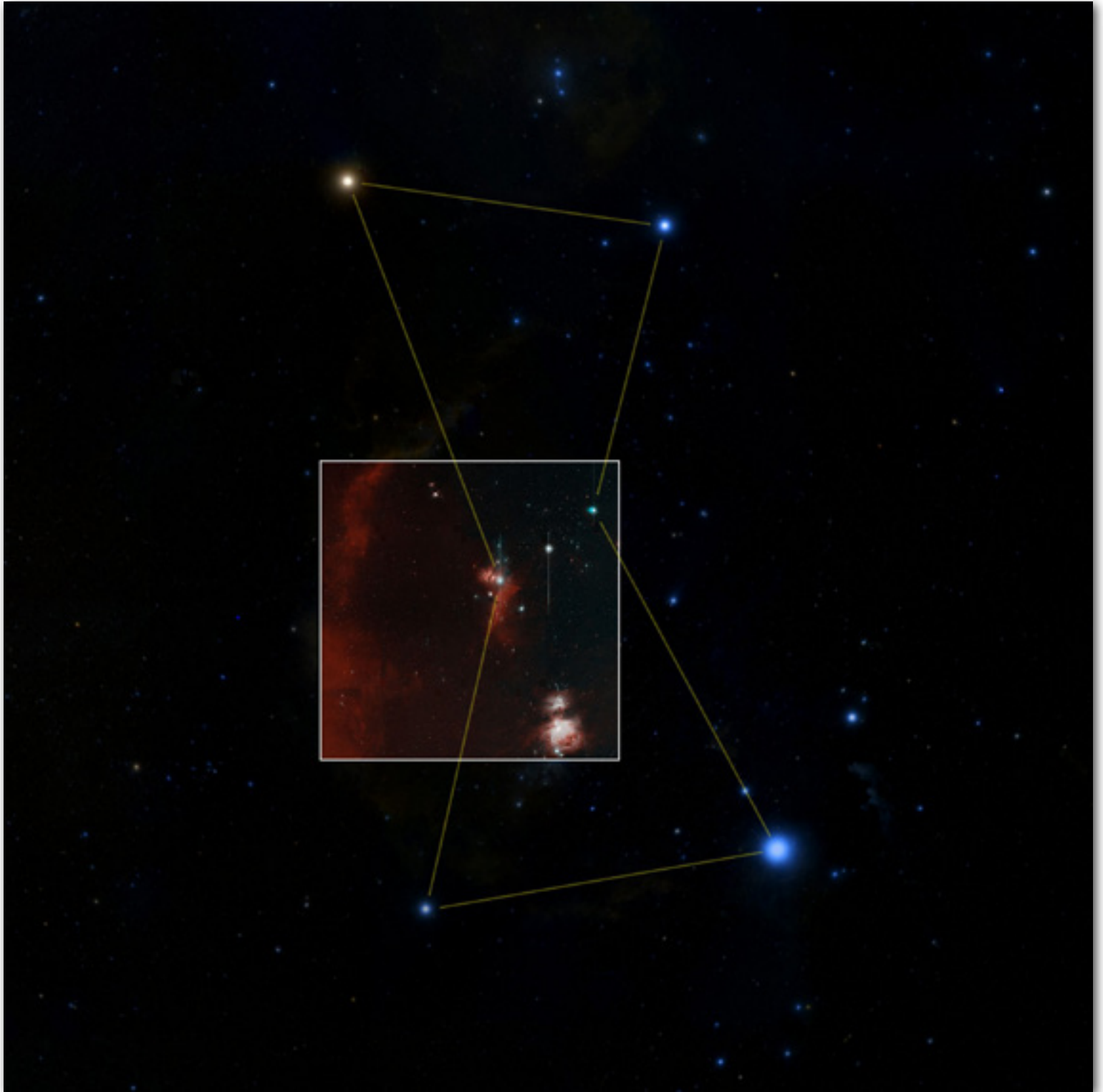
Northern Hemisphere observers can find Orion during January evenings in the east/southeast skies. Can you spot the Orion nebula with your naked eye, in Orion's sword? How does it look via binoculars or a telescope? What other details can you discern? Please note that some deep sky objects aren't listed here for clarity's sake. For example, M43, a nebula located directly above M42 and separated by a dark dust lane, is not shown. Orion's Belt and Sword are crowded, since they star-forming regions! You can read more in our November 2019 article Orion: Window Into a Stellar Nursery, at bit.ly/orionlight.

Image created with assistance from Stellarium



Orion the Hunter

The inset image is the “first light” photo from the Zwicky Transient Facility, a large survey telescope designed to detect changes in the entire night sky by detecting “transient objects” like comets, supernovae, gamma ray bursts, and asteroids. For many astronomers, amateur and pro alike, Orion is often the “first light” constellation of choice for new equipment!



Meeting Minutes

Minutes of the Southwest Florida Astronomical Society – December 2, 2021

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 7:44pm by president Brian Risley. There were 15 present in the Planetarium and 10 Zoom participants for a total of 25. There were 2 visitors.

The annual election of Club officers was held. Dan Dannenhauer made a motion, seconded by John MacLean, for Don Palmer to continue as secretary. The motion passed.

Sean Dey made a motion, seconded by Phil Jansen, for John MacLean to continue as treasurer. The motion passed.

Ray Bratton made a motion, seconded by Steve Sandor, for Mike McCauley to continue as vice president. The motion passed.

Phil Jansen made a motion, seconded by Sean Dey, for Brian Risley to continue as president. The motion passed.

Dan Dannenhauer volunteered to meet with treasurer John MacLean for the required annual audit.

The annual post office box rental fee of \$209 is due. Dan Dannenhauer made a motion, seconded by Sean Dey, to authorize paying the bill. The motion passed.

Equipment coordinator Brian Risley has been going through equipment stored at the Planetarium. Some is in good condition, some of it has issues. Brian is working to organize and repair the equipment there. He is willing to give out some of the equipment. Contact Brian if interested.

A new ramp into the Planetarium has been constructed. Also, new seats are planned. Mike McCauley reported seats can be purchased through the Nature Center website calusanature.org.

Brian reported permission has been obtained from Cape Coral Parks and Recreation to have observing sessions at SeaHawk Park. A schedule is pending. The Burrowing Owl Festival and Rotary Park star party will be in February and March. After a discussion, a consensus was reached to not continue star parties at Caloosahatchee Regional Park due to remoteness, parking fee and lack of participation.

Alex Bratton is doing an online program from Big Cypress on December 5.

Mike Jensen reported the astrophotography special interest group is doing well with 8-10 participants. They are instituting a target of the month program.

Tom Segur reported a Charlotte County Saturday solar observing session had to be moved to Fishermen's Village. He was interviewed by a "Charlotte Sun" reporter. There will be a Friday December 3 observing session at the FSW Punta Gorda campus.

John MacLean made a motion, seconded by Dan Dannenhauer, to approve the November meeting minutes as e-mailed to the membership. The motion passed on a voice vote.

Treasurer John MacLean presented the Treasurer's report indicating a November closing balance of \$2903.66. Steve Sandor made a motion, seconded by Phil Jansen, to approve the report. The motion passed on a voice vote.

Astronomical League coordinator John MacLean reported our information is up to date.

Mike McCauley is looking for a January program. Contact Mike or Brian with suggestions or ideas.

Mike is working on a January program with the Cape Coral Parks and Recreation for 10 special needs clients. More information will be coming. Also the Nature Center is conducting events at Babcock Ranch December 29, January 12, April 16, and August 16. He will be looking for help with these activities. More information to come.

The business meeting adjourned at 8:42pm.

Alex Bratton began a remote presentation of a program on digital astronomy, but the Internet connection repeatedly malfunctioned and the presentation could not continue.