

SPECTRUM

Northern Cross Science Foundation Newsletter

February 2023

Winter Visitor - Comet ZTF (C/2022 E3), has made headlines this winter. But you won't see the Green Comet with the naked eye, unless you're under a clear rural sky free of light pollution. Use binoculars, and you'll have to know exactly where to look too, as it won't quite reach 5th magnitude. This photo was taken with a 500mm telephoto lens early Friday morning (Jan. 27) during a brief but hazy break in the clouds. It moved quickly near the Little Dipper's bowl during this 30-minute sequence. Read more about the comet and where to find it at the [Sky&Telescope website](#) and the S&T February issue. - Ernie Mastroianni photo.

Minutes from the January 5 General Meeting

The January General Meeting started unofficially at 6 pm at the Jackson community Center. This is the chance for discussion, questions, and welcoming new members. The General Meeting officially started at 6:30 with a short introduction of the speaker for the evening.

Steve Bradshaw from the East Valley Astronomy Club spoke on the topic titled *Lagrange Points, Parking Lots in Space*. Interestingly I wanted to seek out the pronunciation of the word Lagrange and had a hard time finding the phonetic spelling of the word on the internet. Lots of YouTube voice recordings, which do not help me when I am trying to put it on paper. The world is changing. Anyways, the phonetic spelling is "luh-greynj".

The presentation was the first to be brought to an in-person meeting via Zoom. This opens presentations to be made by speakers beyond our local area. The talk went off with only a minor glitch but the presentation ran a little longer than advertised, which left little time for any other topics during the business meeting. It's an issue that will need to be addressed as we get comfortable in our new location.

Gene DuPree reported \$12,979.84 in the general fund. Jeff reminded everyone that dues are renewable now.

Renewal can either be [made online](#) with various credit cards or PayPal. A dues form

can also be [downloaded from our website](#), and mailed with a check.

Jeff mentioned that now would be the time to start planning for the total solar eclipse on April 8, 2024. Various strategies to accomplish this were discussed. Please feel free to discuss on our [Slack page](#). Discussion could include: where and why you are going where you are going, are you going with a group, cost, best location.

The Slack site is the perfect place to get up to speed, see what others are doing. If anyone still has questions on getting invited to join Slack, (which is a private group that is only open to members of our club) please send Jeff an email. His email is in the Spectrum newsletter. Speaking of Slack and Spectrum, when we ran short of general meeting time, Jeff suggested to keep up to date by checking the Spectrum, or Slack. I know there are a few ski and sky events that can keep us busy this winter. Also please do not hesitate to post relevant events on Slack.

The members would be happy to see more information. For instance, thanks Steve Sweeney for posting information about the ever-elusive comet of the century, C/2022 E3 (ZTF). We will see.

I hope I have documented the essence of January's meeting. If not, please feel free to correct, add, update as needed.

- Mike Borchert

Coming Up

**Thursday, Feb. 2 6 pm
General Meeting,**
[Jackson Community Center](#)
N165 W20330 Hickory Lane
Jackson, WI 53037
Program: Planetary Nebulae

**Thursday, March 2 6pm
Annual Banquet**
Libby Montana restaurant
5616 W. Donges Bay Rd.
Thiensville, WI

**Saturday, March 11 9-2 pm
Annual Swap-n-Sell**
[Aviation Heritage Center,](#)
Sheboygan Airport
Bring your astronomy items
to sell or swap

**May 5 and 6
NCRAL Convention**
[Grand Bear Resort,](#)
Utica, Ill.
Hosted by the [Twin City
Amateur Astronomers](#)
See page 4 of the
[Northern Lights,](#)
the quarterly NCRAL
newsletter

Public Viewing Nights for 2023

For decades, the NCSF has led viewing nights for the general public at many locations including Harrington Beach State Park, the Kettle Moraine State Forest's Pike Lake Unit, Horicon Marsh, the Ice Age Center and many other venues. Participation is a key part the NCSF mission, so please be volunteer in the upcoming year.

- Feb 4 6pm-9pm at the Reuss Ice Age Center
- Feb 11 6pm-9pm at Pike Lake
- May 26 & 27, Harrington Beach State Park, 8-11 pm
- May 27, Pike Lake, 8-11 pm
- June 3rd, Solar Viewing at Pike Lake Discovery Day, 1-4
- Jun 23, Pike Lake, Solar viewing, Fish Fry 4-7:30 pm
- July 15, Pike Lake, 8-11 pm
- July 21 & 22, Harrington Beach, 8-11 pm
- August 12, Pike Lake, Public, 8-11 pm
- August 25 only, Harrington Beach, 8-11 pm
- August 26, Ice Age Center, 7-11 pm
- September 9, Family Night, Pike Lake Beach area, 6-9
- September 8 & 9, Harrington Beach, 8-11 pm
- September 9, Pike Lake, 8-11 pm
- September 16, Pike Lake, 8-11 pm
- October 20 & 21, Harrington Beach, 8-11 pm
- October 21, Pike Lake, 8-11 pm



A clear October night in 2022 drew dozens of observers to the Northern Cross's Plunkett Observatory at Harrington Beach State Park. Public engagement is one of the top priorities of the Northern Cross Science Foundation. - Ernie Mastroianni photo

NCSF Volunteer Hours for Public Nights at Plunkett Observatory

During the 2022 observing year at the Harrington Beach State Park facility, 16 NCSF members volunteered a total 138.5 hours under the night sky over nine nights from May through October. This total does not include public viewing events hosted by members at Pike Lake, Horicon Marsh, or the Henry Reuss Ice Age Center. Also not included in the total were observing sessions hosted by members at various schools. I'll try to get those totals in a future newsletter. - *Ernie Mastroianni*

Public Viewing Nights, Harrington Beach	
Name	Total Volunteer Hours
Mike Borchert	9
Gene DuPree	4.5
Charlotte DuPree	4.5
Rick Dusenbery	6
Chris Fuchs	3
Dan Goetz	4
Joyce Jentges	11
Jim Macak	9.5
Ernie Mastroianni	10
Rob Powell	5
Steve Schowalter	4.5
Rick Sell	23.5
Susan Sell	13
Jeff Setzer	13.5
Steve Sweeney	4.5
Don Woelz	13
Total	138.5

Stay Current with our Regional and National Organizations

You can download the NCRAL quarterly newsletter at this link:

<https://tinyurl.com/242vzbud>

Or sign up to have it emailed:

<https://tinyurl.com/NCRAL>.

Download *The Reflector*, the national newsletter here:

<https://www.astroleague.org/reflector>

Minutes from the January NCSF Board Meeting

- Members in attendance include Don Woelz, Jeff Setzer, Joyce Jentges, Gene Dupree and Mike Borchert.
- Gene reported \$12,979.84 in the general account. Jeff reported \$954 in the PayPal account. There was slightly more than \$600 dollars in the Rick Kazmierski memorial fund.
- Discussion centered on the club's Slack account. Mike asked if there was still room to post minutes. Don asked if there was room to post images. Jeff commented that since the Slack account was free, there were limits on the amount of online storage space. Jeff mentioned that when the general meeting was being recorded on Zoom, the posting of those meetings took a lot of digital space. That is no longer the case, and we should have enough room. Jeff does go into the account from time to time and delete as needed.

- The Astronomical League's vote on amending its bylaws was discussed. Everyone had a chance to review the changes and the vote was unanimous to amend. Mike will send the results to the League.
- Meeting presentations at the Jackson facility for general meetings should be scheduled for 45 minutes, with a short 10-minute Q&A afterwards. If they are designed to run longer; the meeting start time will need to be moved closer to 6 pm.
- Zoom/In-Person meeting was discussed. It was noted that the audio and video challenge sometimes left a lot to be desired. The Madison astronomy club is trying the duo presentation. Board members were going to try and sit in on one and see the results.
- The Kazmierski memorial fund was discussed. The money in the fund was originally to be dispersed with no earmarks. The mention of Rick's name

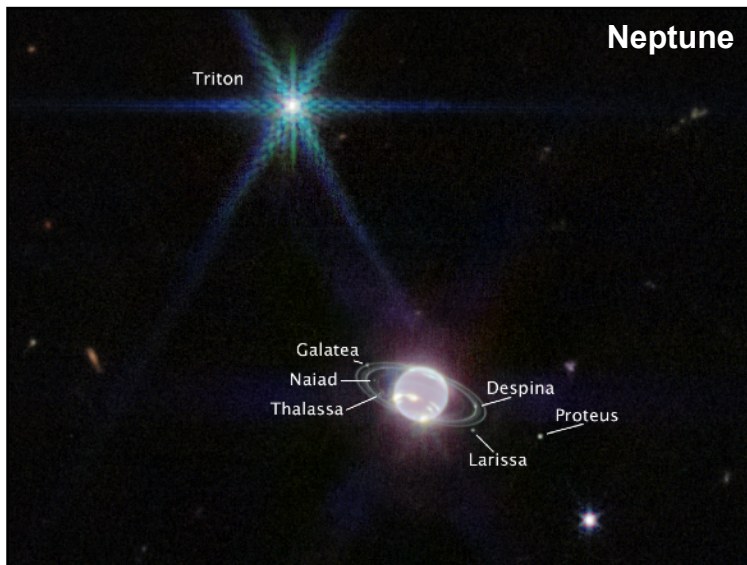
- being added to a telescope that already had his wife's name on it was on the table. As well as the purchase of a tree to be planted next to a bench dedicated to Mickey Kazmierski already established at Lac Loraine.
- The traditional March dinner meeting will take place at Libby Montana's. Mike will let the Jackson facility people know that there will be no meeting there that night. The dinner is ordered off of the menu and paid for that evening. Details yet to be announced.
- Joyce has a speaker for April's meeting. Jonathan Ward will present "Bringing Columbia home".
- February's meeting will have a presentation by Jeff. The topic will be Planetary Nebulae.
- May 5 and 6 is the 2023 NCRAL, hosted by the Twin City Amateur Astronomers in Illinois. Look for a future announcement - *Mike Borchert*

One Year of Webb Astronomy

By Joyce Jentges

Christmas Day 2021, NASA gave the world a present with the launch of the James Webb Space Telescope. I'd like to take a look at some of the discoveries attributed to Webb in its first year of operation.

Webb sees in near and mid infrared light. The near infrared instrument on Webb is called NIRCcam which shows newborn stars which until now have been unseen. The MIRI instrument sees mid-infrared light which gas and dust.



Pillars of Creation Update

Let's start with Webb's beautiful picture of the Pillars of Creation. Hubble first took a picture of this area in 1995 and revisited it in 2004, but Hubble can see only a tiny bit of infrared light, so it cannot capture as much detail as what Webb. Webb's new photo of this area reveals many newborn stars and more detail in the pillars. In Webb's photo, the background is filled with tons of stars which we can see now because Webb can see through all of the gas and dust. Take a look at the tip of the pillars. Those areas glowing red are where stars are being created.

The MIRI instrument looks at infrared light in the middle range. When we combine the pictures from these two instruments we get a glorious view. NIRCcam shows the orange colored areas at the top of the image containing many newer stars.

Exoplanets

I typically don't follow much about exoplanets, but this particular one is noteworthy as it was one of Webb's first photos - WASP-39 b. Webb was able to revisit this Exoplanet again after the initial photos and was able to come up with a chemical and molecular profile of this planet's atmosphere.

The atmosphere contains carbon dioxide, sulfur dioxide, water, sodium, potassium and other chemicals. Webb was able to do this by using spectroscopy, breaking the light from the planet down to a spectrum. The



discovery of sulfur dioxide is important because this indicates photochemistry which is the first time this has been seen on an Exoplanet. Photochemistry is chemical reactions created by energetic stellar light.

Neptune

Did you see the pictures that Webb took of Neptune? Webb has revealed the planet's ring system in glorious detail. It's been about three decades since we have seen these rings and this photograph has managed to capture both the bright and dimmer rings. Neptune has 14 moons and Webb was able to capture seven of them in this photo.

The star at the top with the diffraction spikes is actually the moon Triton. The reason that Triton outshines Neptune in this photo is that the planet's atmosphere is darkened by methane absorption which is hard to see in infrared light.

The bright streaks and spots are methane-ice clouds which are reflecting light before it is absorbed by methane gas. This image was taken by NIRCcam. When this picture was revealed to the public, my Twitter feed was blown up by astronomers who were crying because the image was so beautiful. There are so many other pictures from the Webb so take the time to explore more at these websites: <https://webb.nasa.gov/> and <https://esawebb.org/images/>.

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NCSF is a member of the [North-Central Region of the Astronomical League.](#)



NCSF supports the [International Dark Sky Association](#)

January 21 Horicon March Ski and Hike

We had known for several days that it would be cloudy for this night. The Education Center had one-hour time parking vouchers to spread out the arrival of visitors.

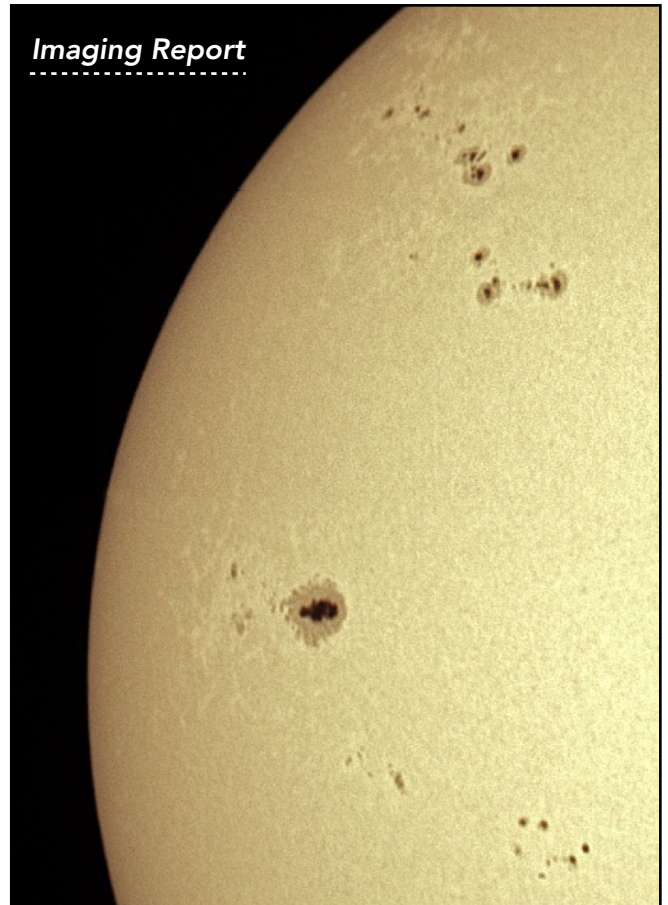
So, we did not have the crowds as there was pre-COVID. The last time we attended was January of 2020.

Also, most visitors know where to get to the hike, and they do not have to come inside to get to the trailhead. We had our usual table, in the atrium, to display handouts and a telescope. Thanks to Mark Zellner for helping with the questions and answers to the people that did stop. Gene had a short tube refractor set up, looking at the eye of a wooly mammoth in a painting up on a wall.

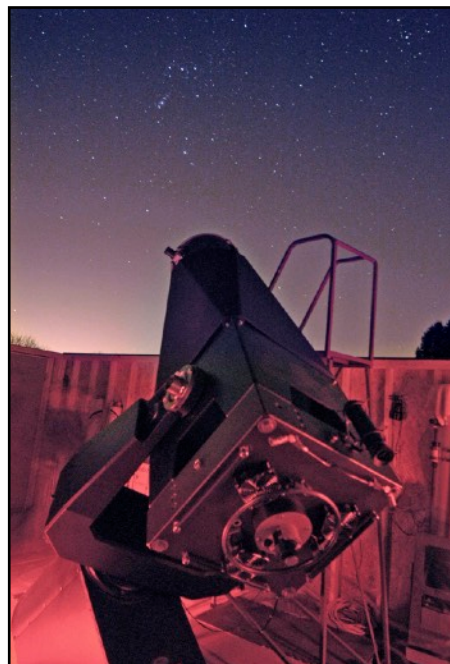
We put out the basketball and tennis ball, 25 feet apart showing, the size and distance of the Moon to the Earth.

He also had an open-tube Coulter for display so you can see how a reflecting telescope works.

- Charlotte DuPree

Imaging Report

More Active than Predicted - When Solar Cycle 25 began in December 2019, international experts predicted a below-average 11-year cycle, much like the previous one. But so far, the sun is more active than expected as evidenced by these dense clusters of sunspots seen on Jan. 15 of this year. Solar maximum is still more than two years away. This photo was taken from suburban Milwaukee through a 3.5-inch Questar telescope with a solar filter.
- Ernie Mastroianni photo

**Spectrum newsletter**

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