

SPECTRUM

Northern Cross Science Foundation Newsletter

February 2022



Winter Classic - When I aimed my 9.25-inch Celestron at the Orion Nebula from my Whitefish Bay backyard, I planned to shoot 90 minutes of sub-frames. But in near-zero temps on Jan. 10, I haphazardly arranged power and data cords. After just 12 minutes of 60-second frames, the mount stopped tracking after sensing resistance from a tangled cord. Much to my surprise, I captured enough detail to reveal dimmer outer wisps the Trapezium multiple star system. - Ernie Mastroianni

The 2022 Board Of Directors and Officers announced

By Jeff Setzer

The new board and officer lineup for the Northern Cross Science Foundation are as follows:

Jeff Setzer, President, **Joyce Jentges**, Vice-President,

Mike Borchert, Secretary, **Gene DuPree**, Treasurer,

Kevin Bert, **Rick Kazmierski**, **Don Woelz**, at-large

Appointed positions are not officers, nor tied to the Board. Our 2022 appointed positions:

Ernie Mastroianni as Spectrum Editor, **Kevin Bert** as ALCOR,

Dan Bert as Observatory Director

Vision 2022

The NCRAL Vision 2022 convention is proceeding nicely — and it's only four months away! We are beginning to ramp up publicly for the event and also have several guests already signed up. NCSF members are encouraged to sign up as well! As a reminder, the dates are May 13-14 and you can reserve your seat on www.ncsf.info.

February and March General Meeting programs

The program for the February meeting is "Telescope Collimation". Aligning the optical elements of your telescope is important for best performance, but it sometimes seems to be mysterious or difficult. If you have a Newtonian reflector in particular, you will want to learn how to accomplish this alignment — known as collimation — without a lot of heartburn. Fortunately, simple and inexpensive tools can give you excellent results, and you will learn how to use them in this presentation.

The program for March is "Charles Messier And His List". Setzer will present both.

Looking ahead

February 3, Thursday
7:30 pm
General Meeting via Zoom
Program:
Telescope Collimation

February 3, Thursday
Random Lake Schools
Space station [downlink](#)
8:30 – 10:30 a.m. on [NASA TV](#) or [NASA Live](#)

Saturday, March 19
15th annual Swap-n-Sell
9 a.m. to 2 p.m.
Aviation Heritage Center,
Sheboygan Airport

May 13-14, 2022
NCRAL convention
Country Inn & Suites
Port Washington
Web site and information
<https://ncsf.info/ncral-vision-2022/>
Volunteers needed!
Contact [Jeff Setzer](#)

Random Lake Schools host a live event with astronauts

On Feb. 3, Random Lake Schools will host an International Space Station [In-flight Education Downlink](#). According to the NASA website, the space station virtual visits are opportunities for students and educators to interact with astronauts aboard the International Space Station during a live, 20-minute question-and-answer session.

The topic discussed on this day will be the station's water filtration system, and yes, the system that recycles crew wastewater into safe drinking water.

Joyce Jentges will be there to answer questions in her role as a Solar System Ambassador. Gene and Charlotte DuPree and Rick Dusenbery will be there to represent the Northern Cross Science Foundation.

To prepare for the event, students and staff recorded about two dozen questions on video and submitted them to NASA for the astronauts to review and answer.

From 9:20 to 9:40 am, the school will listen to the live broadcast from the International Space Station as astronauts [Kayla Barron](#) and [Thomas Marshburn](#) answer their questions.

This event is by invitation only due to security, but you will be able to watch this on NASA TV or the NASA Channel on TV that morning.



Astronauts Thomas Marshburn and Kayla Barron prepare gear for their December 2021 spacewalk to replace a faulty antenna system. NASA photo

Help needed for Conservation Fair

On April 30, 2022 11 am – 3:00 pm. Random Lake Schools will be hosting a Conservation Fair. Northern Cross will have a booth at this event about light pollution. I think we will also be able to hand out some information about stargazing and our club as well. I have

reached out to the person in charge to see if we would be able to bring telescopes for solar observing. Please let me know if you would be interested in manning the booth, or bringing a telescope for the event. The event and booth are free. - Joyce Jentges

January General Meeting notes

Elections were held during the January General Meeting for two NCSF board seats that were open for three-year terms. Kevin Bert, the club's secretary, was seeking re-election. Kevin's son, Dan Bert, whose board seat was also open, was not seeking a new term. Jason Kazmierski and Don Woelz were nominated for the seat. After the vote, board member Mike Borchert tallied the count and announced that Woelz was elected to replace Bert.

NCSF president Jeff Setzer said the NCSF board votes among themselves for their respective officer positions.

NCSF vice president Joyce Jentges spoke about NASA mission highlights of 2021 during her main program presentation. She reviewed the Parker Solar Probe mission, which made headlines by flying through the solar corona, termed by NASA as "touching the sun."

She also updated the progress made by NASA's newest Mars rover, Perseverance, which will reach the first anniversary of its landing on February 18. Perseverance is on an ancient magma flow where the mineral olivine is abundant. The rover is also gathering samples into small containers, which will be left on the Martian surface for a potential retrieval by future mission. From a NASA website, the sample return is described as such:

Mars Sample Return is a multi-mission campaign designed to retrieve the cores Perseverance will collect over the next several years. Currently in the concept

design and technology development phase, the campaign is one of the most ambitious endeavors in spaceflight history, involving multiple spacecraft, multiple launches, and dozens of government agencies.

"Returning a sample from Mars has been a priority for the planetary science community since the 1980s, said [Michael Meyer](#), lead scientist for NASA's Mars Exploration Program.

In addition to the sample return, the drone that accompanied Perseverance to surface, Ingenuity, has made 18 flights so far in the thin Marian atmosphere for a total flight time of 30 minutes, or an average of 100 seconds per flight.

And the Webb telescope has reached its final destination at the gravitationally stable Lagrange 2 position in its orbit around the sun. It's mirrors and sunshades have been successfully opened and locked into place. Another five months of testing and calibration will follow before astronomical research can begin.

After the presentation, Spectrum editor Ernie Mastroianni proposed nominating the NCSF newsletter for the NCRAL's Newsletter Editor Award. Mastroianni said that the newsletter was a group effort from everyone in the club who contributed material or were featured in newsletter stories. He said he would gather more information to present at the next meeting. - Ernie Mastroianni

Renew your membership now

January is the traditional month to pay your annual membership dues to the Northern Cross Science Foundation (NCSF). We're an active organization, with monthly meetings and compelling programs, access to the Plunkett Observatory at Harrington Beach State Park, and the monthly newsletter.

You'll also receive the quarterly *Reflector* magazine published by the Astronomical League, the national organization to which our club belongs.

The cost is just \$36 for an entire family, \$24 for those under 18 or full-time college students. Patron membership is

\$70 for those who would like to add additional financial support to the NCSF.

You can pay in two ways:

- Send a check for the appropriate amount to NCSF treasurer Gene DuPree at 6219 Jay St. West Bend WI 53095. Make the check out to the Northern Cross Science Foundation.
 - You can also pay online through Paypal or by credit card (AMEX, Discover, Mastercard or Visa). Go to the link at <https://ncsf.info/ncsf-online-dues-payment/>.
- Ernie Mastroianni

2021 volunteer hours for observatory

Looking back at this past year, a total of 11 public viewing nights were held at the Jim and Gwenn Plunkett observatory at Harrington Beach State Park. This includes Observe the Moon night at Harrington when members brought telescopes but the observatory was not opened.

Altogether 24 different members logged a combined total of more than 200 volunteer hours towards public outreach at the park welcoming more than 200 recorded visitors, not including those at the moon night. A big thank you to all who helped with an event in this past year. Looking forward to the 2022 viewing season. - Dan Bert, observatory director



A visitor peers through the Panarusky on a Harrington Beach observing night on July 17 2021. It marked the observatory's first public viewing night almost two years. - Ernie Mastroianni photos

Harrington Beach State Park observing volunteers, 2021

Jim DeLillo, Gene and Charlotte DuPree, Rick Dusenbery, Dan Goetz, Jim Hahn, Joyce Jentges, Jerry Kohlmann, Matt Luedke, Jim Macak, Ernie Mastroianni, Rob Powell, Rick and Ann Sell, Jeff Setzer, Al Steinberg, Steve Sweeney, Ken and Ann Vallier, Mark Weber, Don Woelz, and Mark Zellner.

In addition, thanks to Dan Bert for managing the observatory and to Kevin and Kathryn Bert for cleaning the 20-inch Panarusky mirror.



Al Steinberg observes through his home-built 8-inch Newtonian reflector during public viewing night from a prior year at Harrington Beach State Park. Behind him, another Harrington volunteer points out objects with a green laser pointers.

February observing tips:

Try binoculars

Winter's long clear nights present more hours of darkness and bright targets, but setting up a freezing telescope can be painful. Binoculars are an appealing alternative (I recommend 8x42, 7x50 or 10x50 sizes). For guidance on what to see, it's worth looking at the [NCRAL's Seasonal Messier Marathon](#) observing list for winter. They offer certificates and pins for successful completion, but I find this list to be a handy reference for casual binocular observing.

The Orion nebula and the Pleiades are naked eye and open up nicely through your hand-held twin telescopes. The open clusters of Auriga (M36, M37 and M38) are easily picked up. The Beehive in Cancer glows brightly. Just south of the sky's brightest star Sirius is the rewarding cluster M41.

Veteran observers often know exactly where to look, but everyone needs help at times, so add a digital star atlas to your smart phone. [Celestron's SkyPortal app](#) (made to run its WiFi telescopes) is a free download and will locate most targets within the range of binoculars. It is a stripped-down version of [SkySafari 7 Plus](#), a \$20 program that even runs my Astro-Physics mount.

The moon and planets offer an endless dance of conjunctions and alignments. I'll often check with [In-The-Sky.org](#) to find out what sort of event is upcoming.

With two eyes on the skies and the ease of use, binoculars have often given me some of the most satisfying observing experiences.

- Ernie Mastroianni

Astronomy and spaceflight links

Any comprehensive list of online astronomy links could fill dozens of pages, and as such, this list is selective and is subject to change. All underlined websites are actively linked. Please email me with any more suggestions that you feel would be useful to NCSF members, and let me know if any links are no longer working. - *Ernie Mastroianni, editor*

Astronomy clubs, newsletters and websites

NCSF: <https://ncsf.info>
 Astronomical League: <https://www.astroleague.org/>
The Reflector magazine: <https://www.astroleague.org/reflector>
 Milwaukee Astronomical Society:
<http://milwaukeeastro.org/index.asp>
 North Central region of the AL: <https://ncral.wordpress.com/>
 NCRA newsletter archive:
<https://ncral.wordpress.com/newsletter-archive/>
 US list of astronomy clubs:
<https://www.astroleague.org/astronomy-clubs-usa-state>

Astronomy gear, vendors and online sellers

<https://www.bhphotovideo.com/>
<https://www.highpointscientific.com/>
<https://optcorp.com>
<https://www.telescope.com/>

Astrophotography

Astrobin (a paid site for astrophotography uploads):
<https://welcome.astrobin.com/>
 Rogelio Bernal Andreo <http://www.deepskycolors.com>
 Chad Andrist <https://www.astrobin.com/users/SparkyHT/>
 Jim DeLillo <https://www.astrobin.com/users/jimdelillo/>
 Harrington Beach Imagers Group (Ernie Mastroianni and Tom Schmidtkunz)
https://www.astrobin.com/users/Harrington_Beach_Imagers_Group/
 Trevor Jones <https://astrobackyard.com/>
 Rick Kazmierski <http://skyhawkobservatory.com>
 Jerry Lodriguss <http://www.astropix.com/index.html>
 N.I.N.A astrophotography suite:
<https://nighttime-imaging.eu/download/>
 Gabe Shaughnessy: <https://www.astrobin.com/users/AstroGabe/>
 Babak Tafreshi <https://babaktafreshi.com/>

Classifieds

<https://astromart.com/>
<https://www.cloudynights.com/>

Clear sky forecasts

Astrospheric <https://www.astrospheric.com/>
 Clear Dark Sky <https://www.cleardarksky.com/csk/>
 Clear Outside <https://clearoutside.com/forecast/50.7/-3.52>

Digital star atlases

Cartes du Ciel <https://www.ap-i.net/skychart/en/start>
 Stellarium <https://stellarium.org/>
 Sky Safari <https://skysafariastrometry.com/>

Magazines and online astronomy news

Sky & Telescope <https://skyandtelescope.org/>
Astronomy <https://astronomy.com/>
Astronomy Now <https://astronomynow.com/>
Skynews <https://skynews.ca/>
The Reflector <https://www.astroleague.org/reflector>
Sky at Night <https://www.skyatnightmagazine.com/>
 Astronomy Picture of the Day
<https://apod.nasa.gov/apod/astropix.html>



Sixty years ago - Mercury astronaut John Glenn entered the Mercury Friendship 7 spacecraft during the prelaunch preparations at Cape Canaveral, Florida on Feb. 20, 1962. Glenn became the first American to orbit Earth. NASA photo from images.nasa.gov

NASA images and missions

James Webb telescope https://www.nasa.gov/mission_pages/webb/main/index.html
 Hubble telescope <https://hubblesite.org/>
 NASA JPL Curiosity <https://www.jpl.nasa.gov/missions/mars-science-laboratory-curiosity-rover-msl>
 NASA JPL Juno at Jupiter <https://www.jpl.nasa.gov/missions/juno>
 NASA JPL Mars 2020 <https://www.jpl.nasa.gov/missions/mars-2020-perseverance-rover>
 NASA Johnson Space Center on Flickr
<https://www.flickr.com/photos/nasa2explore/>
 NASA Images
<https://www.nasa.gov/multimedia/imagegallery/index.html>
<https://images.nasa.gov/>
 NASA video on YouTube
https://www.youtube.com/channel/UC_aP7p621ATY_yAa8jMqUVA
 NASA International Space Station
https://www.nasa.gov/mission_pages/station/main/index.html
 NASA Kennedy on Flickr
<https://www.flickr.com/photos/nasakennedy/>
 NASA Project Apollo Hasselblad scans:
<https://www.flickr.com/photos/projectapolloarchive/albums>

YouTube Astronomy and Space Exploration

Featuring videos on popular Messier objects
<https://www.youtube.com/user/deepskyvideos>
 Ed Ting's telescope reviews and more
<https://www.youtube.com/user/edting>
 Nebula Photos: astrophotography tips
<https://www.youtube.com/c/NebulaPhotos>



Hi-res moon flight

This dramatic frame-grab is from the Goddard Space Flight Center's [Scientific Visualization Studio](#). This particular video, made in 4K resolution, is a visualization that recreates what was seen by the Apollo 13 astronauts in 1970. It shows the Tsiolkovsky crater on the moon's far side. The video uses data gathered from the Lunar Reconnaissance Orbiter. You can see the spectacular 2-1/2 minute video, backed by a music score from Frederick Wiedmann, at this link: <https://svs.gsfc.nasa.gov/13537>.

You Tube Astronomy continued

Helena's Astrophotography Channel

This young woman from Scotland is a rising star, great videos!

<https://www.youtube.com/channel/UCG5Hd14VipcinOzhll5aXhQ>

Astrobackyard: One of the best astrophotography communicators

https://www.youtube.com/channel/UCn3npsPixgoi_xLdCg9J-LQ

Patriot Astro, all things astrophotography 3 million subscribers

<https://www.youtube.com/c/patriotastro/videos>

NASA: general YouTube Channel

<https://www.youtube.com/c/NASA>

NASA JPL

<https://www.youtube.com/c/NASAJPL>

NASA Johnson

<https://www.youtube.com/user/ReelNASA>

Astroimaging Channel

<https://www.youtube.com/channel/UCiR5AmROq4YcXF8hCxxZQ-g>

NASA Live space station views

<https://www.youtube.com/watch?v=86YLF0og4GM>

NASA spaceflight (not official NASA)

<https://www.youtube.com/channel/UCSUu1lih2RifWkKtDOJdsBA>

Observatories

UW Astronomy <http://www.astro.wisc.edu/>

Gemini <http://www.gemini.edu/>

WM Keck <http://www.keckobservatory.org/>

European Southern Observatory <https://www.eso.org/public/>

ESO images <https://www.eso.org/public/images/>

NOIRlab: formerly National Optical Astronomy Observatory

<https://noirlab.edu/public/images/>

National Radio Astronomy Observatory <https://public.nrao.edu/>

Lowell Observatory: <https://lowell.edu/>

Observing

Clear Skies Observing Guides <https://clearskies.eu/csog/>

Current comets: <http://www.aerith.net/comet/weekly/current.html>

Fred Espanek's eclipse guide: <http://mreclipse.com>

Upcoming and seasonal events: <https://in-the-sky.org/>

ISS transits: transit-finder.com

CCD calculator: <https://new-astronomy-cddcalc.software.informer.com/>

Tonight's Sky localized <https://telescopius.com/>

Jupiter's Great Red Spot transit

Outreach organizations

Planetary Society <https://www.planetary.org/>

Night Sky Network from JPL/NASA <https://nightsky.jpl.nasa.gov>

Citizen science participation <https://cosmoquest.org>

NASA Solar System Ambassadors <https://solarsystem.nasa.gov/solar-system-ambassadors/events/>

Sky calendars

<https://skyandtelescope.org/observing/sky-at-a-glance/>

<https://astronomy.com/observing>

Spaceflight news, blogs, commercial and foreign space agencies

Earth and Sky: <https://earthsky.org/>

NASA blogs: <https://blogs.nasa.gov>

NASA Spaceflight <https://www.nasaspaceflight.com/>

NASA Watch <http://www.nasawatch.com>

Spaceflight Now <https://spaceflightnow.com/>

Spaceflight Insider: <https://www.spaceflightinsider.com/>

Space News: <https://spacenews.com/>

Space Weather <https://spaceweather.com/>

Space Journal of Asgardia (a borderless nation of space enthusiasts) <https://room.eu.com/>

Universe Today <https://www.universetoday.com/>

Spaceflight: commercial and foreign space agencies

Blue Origin <https://www.blueorigin.com/>

Boeing <https://www.boeing.com/space/>

China National Space Agency : <http://www.cnsa.gov.cn/english/>

European Space Agency <http://www.esa.int/>

Lockheed Martin Space

<https://www.lockheedmartin.com/en-us/capabilities/space.html>

Roscosmos (Russian space agency): <http://en.roskosmos.ru/>

Sierra Nevada Corp. <https://www.sncorp.com/space-systems/>

SpaceX: <https://www.spacex.com/>

United Launch Alliance <https://www.ulalaunch.com/>

Virgin Galactic: <https://www.virgingalactic.com/>

Board of Directors, 2022**President - Jeff Setzer**

1418 Trillium CT
West Bend, WI 53095
262-338-8614
astrosetz@hotmail.com

**Vice President -
Joyce Jentges**

336 N Main Street, Apt.3
Cedar Grove, WI 53013
262 483- 4270
joycejentges@hotmail.com

Treasurer - Gene DuPree

6219 Jay St.
West Bend, WI 53095
262-675-0941
grdupree@charter.net

Secretary - Mike Borchert

3656 Willow Creek Rd.
Colgate, WI 53017
262-628-4098
gmborchert@gmail.com

Kevin Bert

2292 Ridgewood Road
Grafton, WI 53024
(262) 674-0610
kevin.bert@hotmail.com

Rick Kazmierski

5327 Cascade Dr.
West Bend, WI 53095
262-305-1895
rickkaz@charter.net

Don Woelz

4892 Lois Lane
West Bend WI 53095
(414) 732-7705
woelzd@charter.net



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



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

Imaging report

The Jellyfish Nebula is part of the IC443 nebula complex. It is a supernova remnant in the constellation Gemini with an apparent size of 50' arc-minutes. I learned of this object several weeks ago and knew I had to try and image it. From my back yard, I used a Stellarvue 105mm refractor, 25 exposures of four minutes each, and a narrowband filter. The temperature inside my Observatory was zero degrees F. A bit chilly, but clear skies seem to be hard to come by this time of year unless it's really cold. - Rick Kazmierski

**Spectrum newsletter**

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<https://ncsf.info>

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Slack: ncsfastro.slack.com

Editor: Ernie Mastroianni
5821 N. Santa Monica
Whitefish Bay, Wis 53217
ernie.mastroianni@gmail.com