



NORTH CENTRAL REGION OF THE ASTRONOMICAL LEAGUE

Spring 2022 - Volume 6, Number 4

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NCRAL 2022 MAY 13-14

The **NCRAL 2022** convention is coming together with a full slate of speakers and activities ready to go; more importantly, it gives us all a chance to meet in real life for the first time in two years! From associate and contributing editors of *Astronomy* and *Sky & Telescope* magazines, to the administrator of the *NASA Night Sky Network*, we have representation from well-known institutions of amateur astronomy. From the realm of cutting-edge professional astronomy, we have Ph.D.s. who will take us through the entire electromagnetic spectrum with instruments around the world, and even down to Antarctica and world's largest neutrino observatory. Observatory tours, a Library Telescope workshop, and sitting down to great meals with astronomy-loving friends will all be part of the experience – as well as a few surprises!

You can find all of the details on our website (www.ncsf.info). You can register completely online or download and use the mail-in form. Either way, we're counting on NCRAL members to sign up and make NCRAL's first event after the two-year pandemic hiatus a successful one. We need to see YOU on May 13-14 at the Country Inn & Suites / Lakeview Conference Center in Port Washington, Wisconsin.

Jeff Setzer, President
Northern Cross Science Foundation
astrosetz@hotmail.com

NCRAL CHAIR'S MESSAGE

Make plans now to attend **NCRAL 2022**. This year's face-to-face convention will be hosted by the *Northern Cross Science Foundation* and held at Port Washington, Wisconsin, May 13-14. The **NCRAL 2022** convention website and registration are up and running! Please register today.

Jeff Setzer, NCRAL's webmaster and convention host, has updated the NCRAL website to reflect the most current information about a number of items. Follow this link for convention details: www.ncsf.info. Also, please follow this link, ncral.wordpress.com, for information about Regional events in the new year. If you have anything to add to our Regional calendar, please email Jeff directly at astrosetz@hotmail.com.

Looking ahead to the NCRAL 2022 business meeting in May, I'm alerting everyone to the fact that there will be two elections – one for Secretary-Treasurer and one for Regional Representative. Roy Gustafson is completing his second two-year term as Secretary-Treasurer (2020-2022) and is eligible to run for another term. He is willing to do so. Bill Davidson is currently in his last year of his second three-year term as Regional Representative (2019-2022). Bill continues in his second term as Vice Chair of the Region (2021-2023) but is eligible to run for a third term as Regional Representative.

Because NCRAL elections are open to all qualified candidates, we are seeking nominations for these two positions. If you are willing to run for one of these two positions, please contact me at carlwenning@gmail.com. Nominations will continue to be taken until the nominations process is closed at the May 14th business meeting.

I strongly encourage NCRAL members to turn out for NCRAL VISION 2022. This is our first "post COVID" convention and I'm a bit worried about the impact of the pandemic on our gathering. I'm not worried so much about the disease itself as I am with how the nature of our communications as amateur astronomers have changed during the pandemic. Over the past two years, Zoom-style events have taken over face-to-face activities in many of our clubs – including my own. It's convenient to "attend" Zoom meetings to see and hear speakers from around the world in the comfort of our own homes with no travel time, expenses, or concerns. Now, I'm starting to speculate if potential attendees might consider conventions outmoded. Prove my speculation wrong by

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attending NCRAL 2022. Jeff Setzer and company have worked long and hard to bring us a wonderful event that is spiced up with one-on-one conversations and interactions, something not available during Zoom gatherings. The camaraderie of amateur astronomy – sharing the love of astronomy with others – has not waned.

Alas, despite my encouragement for you to attend NCRAL 2022, I regret to inform you that I will not be present at this year's convention. During that autumn of 2020, I scheduled a spring 2021 trip to Europe. That trip was postponed due to COVID and rescheduled to 2022. I was thinking it would again be postponed this year, but that is not the case. My travel dates include the dates of this year's convention. In my absence, Vice Chair Bill Davidson has graciously agreed to lead the annual business meeting and present awards on behalf of the Region.

Speaking of awards... March 31st is the nomination deadline for the Region and Newsletter Editor Awards. This date is also the last day for affiliates to apply for the membership and affiliate recruitment mini grants. Read the corresponding call for nominations and applications further on in this issue of **Northern Lights**.

You will recall that NCRAL 2020 was postponed to 2022 and NCRAL 2021 was canceled outright. Our annual conventions are the financial lifeblood of the Region as each year conventions contribute several hundred dollars to our treasury. With missed conventions in 2020 and 2021, we are falling behind a bit financially. While we are still in decent shape financially, I'm encouraging members to contribute to NCRAL. NCRAL is a 501(c)(3) non-profit due to being a part of the Astronomical League, and donations made to the Region are tax-deductible to the extent permitted by law. Please consider donating to NCRAL to support our activities. Secretary-Treasurer Roy Gustafson is collecting donations. See his contact information later on in this issue.

Lastly, we have conventions hosts arranged only through NCRAL 2023. We need convention hosts for NCRAL 2024 and beyond. Please give some thought to hosting a future

convention. Should your club, association, or society want to throw its hat into the ring, please let me know prior to NCRAL 2022 so I can build your offer into the business meeting agenda.

Lastly, it is with a profound sense of sorrow that I announce the passing of Mr. Terry Dufek, a member of Popular Astronomy Club (PAC). Terry passed away on March 11th after more than a year of suffering from brain cancer. He was an extremely active member of PAC, having participated in countless public outreach events and club activities. Terry was one of PAC's most active members in the history of the club. He will be remembered by NCRAL members for having won the Astronomical League's *Mabel Sterns Newsletter Editor Award* in 2018 and having developed the NCRAL logo in 2019 as well as the masthead of this newsletter that stands in



Mr. Terry L. Dufek, Popular Astronomy Club
(1957 - 2022)

lasting tribute to Terry's memory. Terry was instrumental in hosting NCRAL 2019 in Moline, Illinois as well. He was a shining example of an amateur astronomer dedicated to the service of others. He will be greatly missed by all who knew him. R.I.P. dear friend!

So, that's about all I have to say for now. Enjoy this issue of **Northern Lights**. Clear skies and keep looking up!

Carl J. Wenning
NCRAL Chair (2017-2023)
carlwenning@gmail.com

NCRAL FINANCIAL STATEMENT WINTER 2022

~ Reported by Treasurer Roy Gustafson ~

Check #	Date	Description	Amount	Deposit	Balance
	1-Dec-21				\$8,447.26
1020	16-Dec-21	U.S.P.S. (mail certificates and pins)	\$10.59		\$8,436.67
	31-Dec-21				\$8,436.67
	1-Jan-22				\$8,436.67
	31-Jan-22				\$8,436.67
	1-Feb-22				\$8,436.67
	28-Feb-22				\$8,436.67
				Net change	(\$10.59)

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JOURNEY THROUGH SPACE WITH BRUSHWOOD CENTER AND KV 265 AT THEIR UPCOMING FREE CONCERT AND FILM EXPERIENCE MARCH 19TH AND APRIL 23RD

Visual art, science, and classical music come together in two upcoming concert and film experiences, presented by [Brushwood Center](#) and [KV 265](#), on March 19th and April 23rd. The events showcase films produced by Emmy-nominated astronomer and visual artist, Dr. José Francisco Salgado accompanied by an artistic concert experience featuring pianists Marta Aznavoorian and Daniel Schlosberg.

Dr. Salgado's featured films, *The Planets* by Gustav Holst, and *The Universe at an Exhibition* by Modest Mussorgsky, demonstrate his internationally renowned capabilities of choreographing finely tuned video with music and were designated by UNESCO and the International Astronomical Union as a special projects for the International Year of Astronomy. On both of the concerts' respective dates, audiences have the choice of attending a morning, youth and family session, with age-appropriate activities and presentation to follow or an afternoon showing and lecture for veterans and the general public. All concerts will be presented in a bilingual format (English and Spanish) and take place at the Christ Episcopal Church, Waukegan, Illinois, (847) 662-7081.

"The nature of the images alternated between ersatz video graphics and breathtakingly real satellite shots; who could have imagined that Mussorgsky's famous 1874 suite would be so ideally suited for both of them?" - Chicago Sun Times

The Planets by Gustav Holst on Saturday, March 19th

Audiences are taken on a journey through our solar system and beyond in this film that showcases Holst's own two piano composition. It features visuals from NASA, the European Space Agency (ESA), as well as historical illustrations from the Adler Planetarium. As Dr. Salgado explains: "The film is not intended to be seen as a documentary but rather as an art piece that aims to inspire audiences and encourage them to learn more about our solar system and the Universe. It serves as a synthesis of what humans have achieved as solar system explorers."

Youth and Family Concert

10:15am: Pre-concert activities

11am: Concert followed by Q & A with Dr. José Francisco Salgado

Matinee Concert

3:15pm: Pre-concert activities

4pm: Concert followed by Q & A with Dr. José Francisco Salgado

The Universe at an Exhibition by Modest Mussorgsky on Saturday, April 23rd

Set to Mussorgsky's original piano version of Pictures at an Exhibition, audiences are guided through virtual galleries of art-like images and science visualizations of the cosmos, including producer Dr. Salgado's own astrophotography. Patrons are taken beyond the frames, as they travel inside these works of art, immersed into space, as they fly past Earth, planets, stars, black holes, and entire galaxies. The film features images from NASA's Great Observatories (Hubble, Spitzer, and Chandra) and major ground observatories (e.g., European Southern Observatory) as well as visualizations from NASA Goddard Space Flight Center and the National Center for Supercomputing Applications at the University of Illinois.

Youth and Family Concert

10:15am: Pre-concert activities

11am: Concert followed by Q & A with Dr. José Francisco Salgado

Matinee Concert

3:15pm: Pre-concert activities

4pm: Concert followed by Q & A with Dr. José Francisco Salgado

The concerts will feature films produced by astronomer/astrophotographer, **Dr. José Francisco Salgado** and are supported in part by the Illinois Arts Council. We would love the astronomy club members to attend, especially those who live in the northern suburbs of Chicago.

Tickets: Admission is free, but you must register on-line at www.brushwoodcenter.org

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CALL FOR 2022 NCRAI NOMINATIONS & APPLICATIONS

REGIONAL REPRESENTATIVE/REGION AWARD/NEWSLETTER EDITOR AWARD/MINI-GRANTS

The term of NCRAI's Secretary-Treasurer end with the next Regional Business Meeting at NCRAI VISIONS 2022. Roy Gustafson is willing to continue in this position if elected. Regardless, the position is open to all who are willing and able to assume the responsibilities of the position. If you'd like to run for this position, please contact carlwenning@gmail.com.

The term of NCRAI's Regional Representative ends with the next Regional Business Meeting at NCRAI 2022. Either Bill Davidson will be returned to this position, or another candidate will be elected to fill this position. Bill is willing to continue in office. Regardless, the position is open to all who are willing and able to assume the responsibilities of the position. If you'd like to run for this position, please contact carlwenning@gmail.com.

Information about both of these positions can be found in the Region's bylaws available on the NCRAI website at the following URL: <https://ncrai.wordpress.com/bylaws/>.

Now is the time to start thinking about nominations for the NCRAI Region Award. Do you know someone who has dedicated his or her time and energy to promoting astronomy? Wouldn't you like to let them know they are appreciated for their arduous work? This is your chance! This award recognizes exceptional individual effort and meritorious service to amateur astronomy through the member's local astronomy club, public outreach, the NCRAI, or the Astronomical League.

The Regional is now calling for nominations for the 2022 NCRAI Region Award. Using the guidelines and submission forms below, we have made it easier than ever to nominate someone you feel deserves this award. This award will be presented in a ceremony concluding the dinner banquet of the next Regional convention, NCRAI VISION 2022, to be held at Port Washington, Wisconsin, May 13-14.

The Rules for nomination are as follows:

1. The individual must be a member in good standing, either through an AL/NCRAI-affiliated club, association, or society or as a current member-at-large in the North Central Region.
2. The three current regional officers and the regional representative are NOT eligible for this award. Past winners are also ineligible for this award.
3. The regional officers are the voters and will base their decision on the information provided. Past winners of this award will be asked to assist in the case of a tie vote. Each member votes independently and will use his/her best judgment. All decisions are final.

4. The winner will be contacted not less than 21 days in advance of the NCRAI meeting at which the award will be presented. The winner will not be publicly revealed until the time of the presentation. Those nominated but not selected will not be revealed.
5. All non-winning nominations will be kept on file for two years after the initial submission. After such time, a new nomination needs to be competed. Nominations for the 2022 Region Award MUST BE RECEIVED by March 31st. Any nominations received after this date will be kept on file for 2023.

Submission Guidelines

Prepare a statement of the nominee's accomplishments in one or more of the areas listed under the criteria described in first paragraph on page 1. This statement should:

- Not exceed 3 double-spaced pages (1,000 words). Length does not necessarily equal strength.
- Include the number of years in office or committee membership.
- Include the dates of said membership.
- Include the length of time participating in public education, number of presentations, etc.

and should include supporting evidence to the extent possible.

- Any relevant newspaper clippings, photos, and other articles that support the nomination.
- For service to groups such as schools, scouts, etc., it would help the committee if you could obtain a brief statement from the teacher, leader, chair etc. on the usefulness of the presentation.

All nominations must be sent via email to Bill Davidson, NCRAI Vice Chair, at rochesterskies@outlook.com

Let's not forget about the **NCRAI Newsletter Editor Award**. It is expected that the next award will be conferred at the NCRAI 2022 meeting. **Submission Guidelines:** The president of the club/society/association should email a copy of the designated issue of the associated newsletter in Adobe Acrobat pdf file format to NCRAI Vice Chair Bill Davidson (rochesterskies@outlook.com), along with a cover letter of recommendation in the same file format. In addition, complete contact information of the editor must be included. A photo of the newsletter editor, preferably in an astronomical-type setting, must be received electronically in jpg format to the same email address by **March 31st**.

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Lastly, don't about the two **NCRAL mini grants**. A mini grant will be awarded following a successful written proposal originating with the president of an NCRAL affiliate. The focus of a mini-grant must be oriented to an increase in either: (1) an affiliate's membership whose mini-grant proposal must focus on both recruitment and retention (Member Recruitment & Retention Mini-grant), or (2) an increase in the

number of A.L.-affiliated clubs, societies, or associations within the North Central Region (Non-affiliate Recruitment Mini-grant). A unified online mini-grant application must be completed by March 31st. The application link may be found at the following URL: <http://bit.ly/2W2pdeA> Mini-grants, if approved, will be announced at NCRAL VISION 2022.

Submission Form for the NCRAL Region Award

Nominee's name (as it will appear on plaque) _____

Nominee's email address _____

Street address _____

City _____ State _____ Zip _____

Club affiliation _____

Nominator's name _____

Club affiliation _____

Street _____

City _____ State _____ Zip _____

Phone _____

Email _____

Date of Nomination _____

FUTURE NCRAL CONVENTIONS

During NCRAL's annual business meeting, the Region receives offers for hosting upcoming conventions. We are now looking for hosts for NCRAL 2024 beyond. It's never too early to start planning to host an NCRAL convention. The following affiliate has agreed to host the next convention; hosts are needed for 2024 and beyond.

- 2023 Utica, Illinois, Grand Bear Resort: Twin City Amateur Astronomers (May 5-6)
- 2024 and Beyond: **HOSTS NEEDED**

Whether or not your club has ever hosted an NCRAL Regional convention, please consider doing so in 2024 or later. While hosting a Regional convention is a considerable amount of work, it can be quite rewarding – even fun. It provides an opportunity to highlight your group's facilities and accomplishments, build club camaraderie, and to get to personally know interesting guest speakers. You can also use such an event to grow your club's membership.

Remember, NCRAL now has its own convention planning guide. To download the planning guide, visit the following URL: <https://ncral.wordpress.com/conventions/>. Look for the link at the bottom of the page.

Please contact the NCRAL Chair at carlwenning@gmail.com should you have any questions or wish to toss your affiliate's hat into the ring for hosting a future NCRAL convention.

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NOTEWORTHY!

The following NCRAL members were recognized for having completed Astronomical League observing programs in the March 2022 issue of *Reflector*. Congratulations to all for their many and varied successes!

Active Galactic Nuclei Observing Program:

Dave Tosteson, Minnesota Astronomical Society

Asterism Observing Program:

Marilyn Sameh, Milwaukee Astronomical Society

Comet Observing Program:

Ron Ziss, Gold, Naperville Astronomical Association

Constellation Hunter Northern Skies Observing Program:

Dave Tosteson, Minnesota Astronomical Society

Constellation Hunter Southern Skies Observing Program:

Dave Tosteson, Minnesota Astronomical Society

Herschel Society:

Dave Tosteson, Minnesota Astronomical Society

Library Telescopes Award:

Mark Job, Silver and Gold, Minnesota Astronomical Society

Multiple Star Observing Program:

Gerard Jones, Minnesota Astronomical Society

NASA Observing Challenge – International Observe the Moon Night:

Robert P. Rubendunst, Champaign-Urbana Astronomical Society

Open Clusters Observing Program:

Gerard Jones, Advanced, Minnesota Astronomical Society

Outreach Observing Award:

*Brian Chopp, (M), Neville Public Museum Astronomical Soc
Dave Tosteson, (O and S), Minnesota Astronomical Society
Kevin Habegger, (O), La Crosse Area Astronomical Society*

Planetary Nebula Observing Program:

Alan Sheidler, Advanced Imaging, Popular Astronomy Club

Sketching Observing Program:

Gerard J. Jones, Minnesota Astronomical Society

Two in the View Observing Program:

Bill Hennessy, Neville Public Museum Astronomical Society

Variable Star Observing Program:

Brian Chopp, Neville Public Museum Astronomical Society

NCRAL SEASONAL MESSIER MINI MARATHON AWARDS – Autumn 2021 & Winter 2022

No individuals have applied for NCRAL's Autumn or Winter Messier Mini Marathon certificates and pins.

NCRAL SEASONAL MINI-MESSIER MARATHON OBSERVING PROGRAM

The NCRAL Seasonal Mini-Messier Marathon program is intended to serve as motivation to get NCRAL-affiliated members out under the stars to observe. The program permits the use of goto telescopes to find objects and, as such, the program must not be considered proof of observing prowess. The Astronomical League's Messier observing program serves that purpose. Still, NCRAL observing certificates include the words "assisted" or "unassisted." Certificates and pins are now being distributed on the equinoxes and solstices along with **Northern Lights** by the program administrator. NCRAL Secretary-Treasurer Roy Gustafson is program administrator. Please send observing records to Roy at astroroy46@gmail.com. Up-to-date details about the Region's four observing program and helpful observing record sheets can be found on the NCRAL website: <https://ncral.wordpress.com/awards/>.



Autumn: M55, M69, M70, M75, M11, M26, M56, M57, M71, M27, M29, M39, M2, M72, M73, M15, M30, M52, M103, M31, M32, M110, M33, M74, M77, M34, and M76. (27 objects)



Winter: M1, M45, M36, M37, M38, M42, M43, M78, M79, M35, M41, M50, M46, M47, M93, M48, M44, M67, M40, M81, M82, M97, M101, M108, M109, M65, M66. (27 objects)

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Spring: M95, M96, M105, M53, M64, M85, M88, M91, M98, M99, M100, M49, M58, M59, M60, M61, M84, M86, M87, M89, M90, M104, M3, M51, M63, M94, M106, and M68 (28 objects)



Summer: M83, M102, M5, M13, M92, M9, M10, M12, M14, M19, M62, M107, M4, M6, M7, M80, M16, M8, M17, M18, M20, M21, M22, M23, M24, M25, M28, and M54. (28 objects)

OBSERVING NOTES:

- **Autumn:** This season's objects span a wide range of right ascension and declination. With several objects located in Sagittarius and disappearing into the glare of the sun by mid-autumn (M55, M69, and M70), it is best to complete the autumn observing program before the end of October. After that they will be too near the sun to observe during late autumn evenings.
- **Winter:** It probably would be best to begin the winter Marathon around mid-February or later. Any earlier in the year, observers will have to wait until late into the night for all winter objects to have risen high enough in the sky to observe. With winter weather moderating in March, it wouldn't be too late to start then so long as observations are completed by the March equinox.
- **Spring:** This season's objects span a rather narrow region of right ascension, with most of the objects being associated with or in proximity to the Virgo-Coma cluster of galaxies. At the start of spring, an observing run beginning near the end of astronomical twilight should allow observers to view all objects by around 10:30 PM. By mid-April, all objects should be well enough placed at the end of astronomical twilight allowing for their fastest possible observation.
- **Summer:** All summer Marathon objects are above the horizon at the end of astronomical twilight on the first day of summer through the last day of summer. They are nearly all tightly clustered around the galactic center, and most are globular clusters with a few notable exceptions.
- UPDATE (June 4, 2021): *By fiat of the Regional Chair, it is permissible for a group of two or more individuals to work together using a single telescope on the same night to earn a seasonal Mini-Messier Marathon certificate and pin, so long as the group shares a single certificate and pin. All members of a group must observe each Messier object.*

ADD YOUR EMAIL ADDRESS TO THE NCRAL MEMBER DATABASE

Did you know that only about 475 of our Region's 1,900 members are receiving this newsletter via email? That's less than one-fourth of the membership. Please help NCRAL get its newsletter out to the membership by encouraging fellow club members to add their email addresses to the NCRAL member database. Editors, please include this information in your affiliate's newsletter.

When one adds his or her email address to the NCRAL member database, he or she will receive direct notifications about the availability of **Northern Lights**. In addition, subscribers will receive important and timely announcements about Regional conventions, elections, star parties, and so forth. Only blind addressing (Bcc:) will be used with this email list so that others will not see subscribers' email addresses. Email addresses will never be shared with or sold to outside entities.

No one will add your email address to this list for you, so you'll need to do it yourself. Sign-up takes only about a minute. You'll need to provide your name, email address, astronomy club affiliation (or indicate A.L. membership-at-large) and let us know if you hold specific positions within your club. Go to the following case-sensitive URL to add your information to our database at <https://goo.gl/gS8SF> today, so you won't miss important future communications.

NCRAL WEBSITE

~ by Jeff Setzer ~

Go to ncral.wordpress.com and you'll see a central repository for information about our Region and affiliates, the Region's Bylaws, back issues of **Northern Lights**, information about observing programs, awards, and grants, and much more.

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Spring View of Planets

~ By Jeffrey L. Hunt ~

The five naked eye planets are located for easy naked-eye observations during the next three months. A lunar eclipse is visible across the region and a partial solar eclipse occurs in the southern hemisphere.

Mercury passes superior conjunction on April 2 and zips into the evening sky for its best evening elongation of the year. It reaches greatest elongation (20.6°) on the night of April 28-29. It sets 113 minutes after sundown, just six minutes after the end of evening twilight. The speedy planet passes 1.3° to the lower left of the Pleiades star cluster on April 29. They appear together in a binocular field of view for several nights before and after the conjunction. Mercury is joined by the lunar crescent on May 2. If you have a wide-field binocular, you might be able to fit the moon, Mercury and the Pleiades in the same field of view. Mercury quickly retreats into bright twilight, passing between Earth and sun (inferior conjunction) on May 21, then sprinting into the morning sky, where the ecliptic's inclination to the horizon is low and the summer morning appearance is not favorable. The planet joins Venus, Jupiter, Saturn, and Mars for a five-planet display during June. More about that follows.

The **moon** occults Delta Scorpii (Dschubba) during the early morning of April 19, from the eastern Canada and the eastern US, including northern Michigan. See this [resource](#) for more information. For other observers in the region, the pair is very close together. The occultation is repeated during the early evening of [June 13](#), with more of lower Michigan seeing the occultation.

On April 30, a solar eclipse is visible from southern South America and the southern Pacific Ocean. See this [NASA resource](#) for more details.

The moon passes into Earth's shadow on May 16 and is completely within the umbra for 84 minutes. The greatest eclipse occurs at 11:11 p.m. CDT. See this [NASA chart](#) for contact times and durations.

Morning Sky

March

On equinox morning, three bright planets – **Venus**, **Saturn**, and **Mars** – are in the east-southeastern sky. The Mars – Saturn gap is 10.2°. Venus is quickly moving eastward as Mars trails behind after the final conjunction of a triple conjunction series earlier in the month. Seemingly, Saturn barely moves in comparison.

The morning planet triplet closes to within a circle 5.3° in diameter, on March 28, the day before the Venus – Saturn

conjunction. This close planet bunching for these three worlds does not occur again until September 7, 2040. On the closest morning, the crescent moon is below the planet bundle and fits into a wide-field binocular with the three planets.

The day following the close bunching, Venus passes 2.1° to the upper left of Saturn.

Jupiter passed its solar conjunction on March 5th and began to climb into the morning sky. Depending on your observing conditions, the planet is bright enough to be seen low in the eastern sky during early April. A binocular may be needed to initially locate it or see it during later morning twilight.

April

Mars catches and passes 0.4° to the lower left of Saturn on April 5. The Venus – Saturn gap is 7.5°.

On April 15, Jupiter rises at Nautical Twilight, 63 minutes before sunrise. About 20 minutes later, the four bright morning planets stretch 31.3° from Jupiter to Saturn. Jupiter is nearly 3° up in the east, while Saturn is almost 9° above the east-southeast horizon. Mars is 10.2° to the upper right of brilliant Venus. The Venus – Jupiter gap is 14.0°.

April 24-27, the crescent moon passes the four morning planets. On April 27, Venus, Jupiter, and the lunar crescent easily fit into a binocular field of view. The Venus – Jupiter gap is only 3.2° and shrinking each morning.

On April 27, Venus passes 26 arcminutes to the upper right of Neptune ($m = 7.9$). Both planets fit into a telescopic eyepiece that has an actual field of 0.5°. This is a challenging observation with the planets' low altitudes during twilight. In the eyepiece, Venus shows a morning gibbous that is 71% illuminated.

On April 30, forty-five minutes before sunup, brilliant Venus is about 8° up in the east, 29 arcminutes to the right of Jupiter. Mars, nearly 14° up in the east-southeast, is 15.9° to the upper right of Venus. Saturn, nearly 20° above the southeast horizon, is 17.3° to the west of Mars along the ecliptic.

May

Jupiter and Saturn generally follow the annual westward migration of the constellations, while Venus and Mars move eastward compared to the starry background. On May 1, the Saturn – Venus gap is 34.3°. By month's end, the gap nearly doubles.

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On May 29, Jupiter is over 21° up in the east-southeast, 27.6° to the upper right of Venus. Mars passes 0.6° to the lower right of the Jovian Giant.

The moon passes the morning planets, May 22, 24-27.

June

During June, the gap from Venus to Saturn continues to grow. On June 5, Saturn begins to retrograde in eastern Capricornus.

On June 12, one hour before sunrise, Venus – over 7° up in the east-northeast – is 1.6° below Uranus. This is a challenging observation. Look early to see the pair with a binocular.

Mercury reaches inferior conjunction on May 21 and begins a morning appearance that is hampered by the season's long twilight at the mid-northern latitudes. Reaching its greatest elongation on June 16 (23.2°), the speedy planet rises 65 minutes before sunup, just before Nautical Twilight.

For six mornings (June 22-27), Mercury rises at least 73 minutes before sunrise. Starting at magnitude -0.1 and brightening to -0.5 , Mercury, on these mornings, is very low in the east-northeast, but relatively easy to find with favorable observing conditions at the horizon. Beginning around mid-month and extending toward month's end, the five naked-eye planets and moon, along with Uranus and Neptune, are visible in the eastern and southern sky. Add in the classic ninth planet, Pluto, the morning planets span nearly 130° along the ecliptic. Likely the best morning to see the naked-eye five, is June 27 when the moon is near Mercury, pointing the way to the speedy planet.

For those who have at least the minimum aperture, a dark sky, and the patience, a Pluto finder chart is available in the *Observer's Handbook, 2022*, page 239.

The planet activity during spring mornings is an exciting time to see a planet dance unfold in the eastern sky. Each morning the planets' positions are different. Happy planet watching!

REGIONAL OFFICER & LEADER CONTACT INFORMATION

Chair and Newsletter Editor: Carl Wenning

Bio: Carl has been an avid amateur astronomer since being introduced to the sky by his grandfather during July 1957. Today he is an A.L. Master observer spending most of his time helping nascent amateur astronomers with observing. He has been involved with the Twin City Astronomers of Bloomington-Normal (Illinois) since September 1978. He was recognized for his education and outreach efforts in 2007 when he received the **NCRAL Region Award**. He served as NCRAL Regional Chair from 2017-2021 and was re-elected for his third and final two-year term in 2021. Carl served as editor of his club's newsletter, *The OBSERVER*, from 2014-2021 during which time he received the Astronomical League's *Mabel Sterns Newsletter Editor Award* in 2017. He has also served as the **Northern Lights** newsletter editor from 2016 to present. Carl was planetarium director (1978-2000) and physics teacher educator (1994-2008) at Illinois State University. He continues to teach physics education courses in retirement. He just finished his 44th year of college teaching. (Two-year term as Chair, currently in third and final term, 2017-2023; appointed newsletter editor)

Contact: carlwenning@gmail.com



Vice-Chair and Region Representative: Bill Davidson

Bio: In the days of the Apollo missions, Bill first observed the moon (and sunspots!) with a 50x, 60mm JC Penny's refractor telescope. Not discouraged, 40 years later, he built and observes with a 6.25-inch achromatic doublet objective, f/10, 1600 mm focal length refracting telescope. He recently retired as a college mathematics instructor, has been a member of the Rochester Astronomy Club (Minnesota) for 20 years, and serves as editor of the club's award-winning newsletter *Rochester Skies*. (Two-year term as Vice-Chair, currently in second term, 2021-2023; three-year term as Regional Representative, currently in second term, 2019-2022)

Contact: rochesterskies@outlook.com

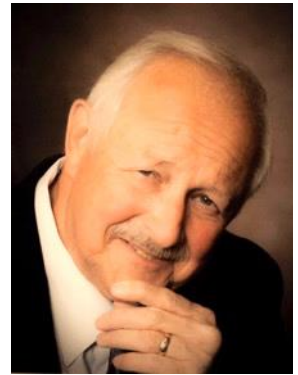


NORTHERN LIGHTS

Secretary-Treasurer: Roy Gustafson

Bio: Roy, a member of Popular Astronomy Club (Quad Cities), got interested in astronomy when visiting the Adler Planetarium in Chicago when he was in 2nd Grade. The stars projected by the Zeiss Projector hooked him and started him on the path of astronomy. He has been active in outreach and has presented astronomy programs to over 20,000 people. He was awarded the Master Outreach award from the Astronomical League. Roy travels with his telescopes and has observed both Transits of Venus and total solar eclipses in 2017 and 2019. Roy also taught astronomy at Black Hawk Junior College in Moline, IL. Roy retired from John Deere & Company after 32 years of service. (Two-year term, currently in second term, 2018-2022)

Contact: astroroy46@gmail.com



Webmaster: Jeff Setzer (appointed)

Bio: Jeff has been an amateur astronomer since 1984 and has been part of the Northern Cross Science Foundation (Wisconsin) since that time. He is a longtime member of their Board of Directors, has held several office positions, and is currently their President. He has completed several Astronomical League observing programs, made his own telescopes and optics, and is a self-described telescope nut. You will often find him at star parties with his 22" Starmaster and TeleVue 85 telescopes.

Contact: astrosetz@hotmail.com

