The Prairie Astronomer

April, 2026 Volume 67, Issue #4

IN THIS ISSUE:

ARTEMIS II IMAGES OF THE MOON
SPHEREX MAPS GALACTIC ICE REGIONS

THE NEWSLETTER OF THE PRAIRIE ASTRONOMY CLUB

The Prairie Astronomer

David Woolf, Kalamazoo, MI at NSP 2018
Photo by Mark Dahmke

Next meeting: Tuesday April 28th 7:30pm at Hyde Observatory

NEXT MEETING

April
'What's in Your Library?'
April's program will provide a basic overview of many of the print and digital tools PAC members use to guide us through our journey in astronomy.

May
How to Use Your Telescope, Summer Edition. The May 26th PAC meeting is offering a repeat of our February program, How to Use Your Telescope. The weather should be a bit kinder, and even though the sun sets later, the moon will be waxing gibbous, ~80% illuminated, and high up in the easter sky, offering a good target (even though the sun won't set until 8:45).

CONTENTS

Cover: Earth sets at 6:41 p.m. EDT, April 6, 2026, over the Moon's curved limb in this photo captured by the Artemis II crew during their journey around the far side of the Moon. Orientale basin is perched on the edge of the visible lunar surface. Credit: NASA

M31 by Brett Boller

Most of our club meetings are held at Hyde Memorial Observatory in Holmes Park.

The Observatory is owned and maintained by the City of Lincoln Parks and Recreation Department, but is operated by volunteers, many of whom are also members of the Prairie Astronomy Club.

CALENDAR

April PAC Meeting
Tuesday, April 28th, 7:30pm, Hyde Observatory
Program: What's in Your Library?

May PAC Meeting
Tuesday, May 26th, 7:30pm, Hyde Observatory
Program: How to Use Your Telescope

June PAC Meeting
Tuesday, June 30th, 7:30pm, Hyde Observatory

PAC Google calendar:
https://www.prairieastronomyclub.org/event-calendar/

2026 STAR PARTY DATES

	Date	Date
January	9	16
February	13	20
March	13	20
April	10	17
May	8	15
June	5	12
July	10	17
NSP	7/12-7/17	
August	7	14
September	4	11
October	2	9
November	6	13
December	4	11

Underlined dates are closest to the New Moon.

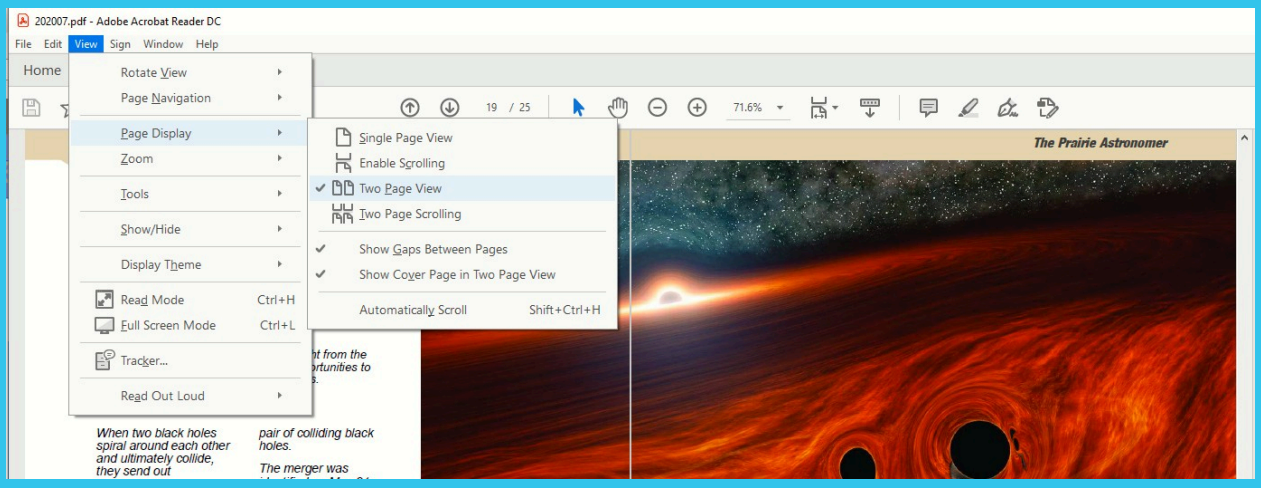
CLUB OFFICERS

President	Jason O'Flaherty jflaher@gmail.com
Vice President	Brett Boller proboller86@yahoo.com
2nd VP (Program Chair)	Amos Sobotka asobotka64@gmail.com
Secretary	Jim White jrwhite2188@gmail.com
Treasurer	John Reinert jr6@aol.com
Club Observing Chair	Jim Kvasnicka jim.kvasnicka@yahoo.com
Outreach Coordinator	Don Hain dhain00@gmail.com
Website and Newsletter Editor	Mark Dahmke mark@dahmke.com

NOTICES

Newsletter Page View Format

How to Adjust Adobe Acrobat Settings for Two Page View



To view this newsletter in magazine spread format in Acrobat, select View ->Page Display->Two Page View. Acrobat will then show two pages side by side. Also make sure the checkboxes "Show Cover Page in Two Page View" and "Show Gaps Between Pages" are checked. If you have it setup correctly, the cover page will be displayed by itself and subsequent pages will be side by side with the odd numbered pages on the left.

Pay Dues

https://www.prairieastronomyclub.org/pay-dues-online/
If you're already a member and are renewing within 30 days of your anniversary date, select the early renewal option for a discount.

PAC-LIST

Subscribe through GoogleGroups or contact Mark Dahmke to be added to the list. You'll need a Google/ gmail account, but if you want to use a different email address, just associate that address with your google account to access Google Groups. Once subscribed, you can view message history through the GoogleGroups website. To post messages to the list, send to this address: pac-list@googlegroups.com

President's Message

Dear PAC Members,
As we move into late April, I'd like to welcome everyone to the spring night sky. Galaxy season is now underway, and I hope you're all getting a chance to spend some time under the stars and enjoy it as much as I am. Nebulae and clusters are fine, but there's something special about the detailed structures of Galaxies that draws me in.

I'd like to thank our Observing Chair, Jim Kvasnicka, for his informative presentation on observing programs at our March meeting. It was a great overview of the opportunities available with the Astronomical League and a helpful guide for anyone looking to add a little more structure or purpose to their observing sessions.
We're very fortunate to have such a strong depth of knowledge and experience in this role. I am currently working to get the recording and any accompanying materials posted and plan to have everything available prior to our next meeting on April 28.
Speaking of our April meeting, the theme will be "What's in Your Library?" This session will provide a basic overview of many of the print and digital tools PAC members use to guide their journey in astronomy. Whether you are just getting started or have been observing for years, this should be a helpful and practical discussion.
I also want to share an opportunity for those interested in connecting with the broader astronomy community. The Mid-States Region of the Astronomical League (MSRAL) will be holding its 2026 convention from June 26–28 in St. Charles, Missouri. Registration is now open, and more information can be found at https://www.asemonline.org/2026-msral.
This is also their final call for presenters. Presentations will be 30 minutes long, followed by a 10-minute Q&A session. Anyone interested in presenting must be registered for the convention and should submit their name, club affiliation (if any), presentation title, and a short abstract by May 1, 2026, to msral2026@asemonline.org. Final selections will be made by May 15, and presenters will be notified via email.
I hope to see everyone at our April meeting.
Clear skies,
Jason O'Flaherty

Welcome new member:
Braden Langemeier

Meeting Minutes

Jim White

Jason O'Flaherty, PAC President, started the meeting at 7:42 pm. Tonight's meeting is being held in person at Hyde Observatory and online via Zoom. Jason started the meeting by introducing himself and announcing that PAC has two new members, Edward McConnell and Trevor Mai. We have one visitor at tonight's meeting; his name is Kevin. At 7:43 Jason turned the meeting over to Jim Kvasnicka.

Jim Kvasnicka, PAC Observing Chair, started his monthly observing report with the dates for April's star parties. The star parties are scheduled for April 10th and April 17th at the Clatonia Recreation Area which is 1 ½ miles North of Clatonia. The planets for the month of April were the next item on Jim's report. Mercury is a morning planet but is difficult to see, Venus is an evening planet and sets about two hours after the sun, Saturn is also a morning planet but is difficult to see, Jupiter is in Gemini at a magnitude of -2 and its disc is 37.44 arc seconds wide, Neptune is not visible in April, Uranus is in Taurus at a magnitude of +5.8 with a disc only 3.5 arc seconds wide and Mars is too close to the sun to be visible. There is one meteor shower in the month of April, the Lyrids, it peaks the morning of the 22nd and you can expect up to 15 to 20 per hour from a dark site and we will get a second opportunity to see them on the night of April 22nd and the waxing crescent moon will have very little effect on your observing. Jim's complete observing report can be found in the newsletter. Jim's observing report ended at 7:48 pm.

Jason continued with the meeting and went over club membership options for any guests that are in attendance. The next PAC meeting is April 28th at 7:30 pm at Hyde Observatory and the program will be "What's in your Library". Jason then turned the meeting over to John Reinert.

John Reinert, PAC Treasurer, wants to go over some of the membership details and details on the Hyde Board meeting tonight. John mentioned that the Hyde Board meets just prior to the PAC meeting and they are under a little pressure to get their business complete before PAC meets. Tonight, they were doing a little meet and greet at the end of their meeting with prospective supervisors that they are considering adding to their ranks and there is always a need for volunteers. The board tends to rely on PAC for some of the volunteers for Hyde but it's not a requirement. There was a problem recently with an EV scope but they

Meeting Minutes, continued

have obtained a new adapter and now the light comes on so it should be back in service again. John mentioned that the student membership rate that was displayed on the screen is now $12.00 per year and not the $10.00 rate that was shown. PAC is in the process of trying to get everyone co-aligned with everyone's membership renewal happening on November 1st. For members with an original membership date other than November and people that want to join the PAC now the membership fee will be prorated to align with the November 1st date and by November 1st of 2027 all memberships will be aligned with a renewal date of November 1st. All of the electronic systems for paying dues are being updated and John is working with Mark Dahmke and with Kale Strizek to get the processes streamlined and more understandable. John still accepts membership dues with cash or a check if you prefer and can give you a receipt if needed. After tonight's meeting John Reinert forwarded the club account balances to Jason and myself and they are; Checking $4,991.15, CD1 $28,801.29, CD2 $5,585.85, BMO Total $39,377.29, PayPal $386.93 for a grand total of $39,765.22. John also mentioned that after tonight's meeting we picked up a new member as Kevin Roark decided to join PAC.

The meeting was turned back over to Jason at 7:52 pm. In upcoming astronomy news, the big event coming up is Artemis II is scheduled to take off tomorrow at 5:24 pm central time and they have a second window in the 7:00 hour if needed, it is a scheduled journey around the moon taking 10 days and traveling 685,000 miles. The SMILE (Solar Wind Magnetosphere Ionosphere Link Explorer) is set to launch on April 9th. Later in the month, as Jim reported, we have the Lyrids Meteor Shower. As John stated we do have volunteer opportunities at Hyde Observatory, there will be Astronomy Night on Saturday April 11th from 5-9 pm at Morrill Hall so if you are interested in volunteering get in touch with Don Hain. Jason then shared some photos of a recent trip to Gracie Creek Cabin that a group of PAC members attended. Jason then asked for anything new from members and Carol Wells had an announcement to make. Carol is on the board at BOO (Branched Oak Observatory) and wanted to announce that they have a paid internship available for someone that is a full-time college student in

Continued on page 10

ARP 91

The Mantrap Skies Image Catalog

Arp 91/NGC 5953-4 is a well-studied pair of interacting galaxies in Serpens Caput about 100 million light-years distant. Arp put them in his category for Spiral galaxies with high surface brightness companions on arms. He made the comment: "Broad peculiar arm to companion, then absorption; faint extension from companion." This appears to refer to the odd band of stars coming from the south end of NGC 5954 (left) and going to NGC 5953 but suddenly appearing to be cut off. I have to wonder if NGC 5953 is slightly in the foreground and its dust suddenly blocks the light from this star stream. In the SDSS image, it may be faintly seen reappearing after passing behind the densest part of NGC 5953. The SDSS image with its three IR channels shows very reddened dust or maybe population 1 stars right where the stream appears to end. I didn't see this color in my image. Unfortunately, seeing was 3.5" when I took my image so it is pretty fuzzy and low resolution. It is on my reshoot list if the weather will ever cooperate. The last part of Arp's comment likely refers to the huge tidal cloud of stars about NGC 5953. I

Rick Johnson

Rick Johnson, a founding member of the Prairie Astronomy Club, passed away in January, 2019. His legacy lives on through his comprehensive catalog of over 1600 images at www.mantrapskies.com.

ARP 91, continued

assume 5953 is the "companion" and the funny star stream the "arm" it is on.

I find references to NGC 5953 calling it an elliptical appearing galaxy, an S0 galaxy and very recent references saying it is SAa: pec; LINER;Sy2. Usually, a galaxy is either LINER or Seyfert 2, but this has references saying one or the other. One trying to make sense out of this says spectra from each camp is very different with many lines having very different strengths in various spectra leading to this differing classification. In any case, the HST put an end to the debate on its status as elliptical S0 or spiral. It's high-resolution image clearly shows it to be a flocculent spiral. I'd hoped to see some resolution of this but only one rather bright flocculent cloud on the east side shows in my image. It also is the only one to show in the Sloan survey image which is far sharper than mine. So apparently this detail is below my resolution ability even on a good night. Still, I want to try again for it. Arp's image does show hints of the flocculent arms which is why I'd hoped to catch a hint of them. Unfortunately, the only HST images I could find don't include the strange star stream talked about above. Apparently, it wasn't of interest to whoever requested the data be taken.

NGC 5954 has no major tidal cloud about it, just the stream appearing to head toward NGC 5953. But it certainly is highly distorted. It has several prominent star clouds that are nearly starlike in my image as well as the Sloan image. But they are very blue in the Sloan image while in mine only the northern one is blue. The others are severely reddened. I can't explain the difference other than the Sloan image goes into the UV spectrum. That may be contributing to their blue color. Or maybe it was just my lousy seeing which was even worse for color data, especially the red channel. Another reason to reshoot this one. It is classed as SAB(rs)cd: pec Sy2. The core region is elongated in the HST image. Maybe that's why it gets a nod to being a barred spiral. I just say it's a really messed up spiral.

Both galaxies have intense star formation going on near their cores, likely fed by their interaction. To me, the spiral structure of NGC 5953 is not all that disturbed while that of NGC 5954 is a total mess. This makes me think many of the stars in the cloud about NGC 5953 came from NGC 5954. While it appears the larger and is obviously the spiral in Arp's classification the lack of distortion to the core of

ARP 91, continued

5953 makes it more the main spiral with 5954 the "companion". It must, at least, have a very dense core region to withstand the tidal effects of their interaction. Something NGC 5954 couldn't seem to resist very effectively. Both were discovered by William Herschel on April 17, 1784. Neither are in either Herschel 400 observing program.

Below this pair is very blue galaxy UGC 09902, a SBdm? spiral. While redshift data puts it quite a bit closer the error bar for its true distance certainly makes it possible it is part of the same group as Arp 91 though this isn't necessarily the case. In any case, it is an interesting low surface brightness galaxy in its own right.

In the lower right corner is NGC 5951. When I set up the image I didn't realize it was there or at least that it was interesting. Thus it ended up cut off. Yet another reason to reshoot this field. It is classed as SBc:. It has a rather odd dark lane that runs off the image. Its redshift puts it about 88 million light-years away. Like UGC 09902 it may or may not be part of the same group as Arp 91. I don't really see it as a barred spiral but it is so tilted to our line of sight that may be hidden in my low resolution. I'd sure like to see it more face on.

Meeting Minutes, continued

Nebraska. Jason's last announcement is that if anyone wants to hangout and socialize after the meeting there are generally some people that get together at the nearby Culver's. Tonight's meeting ended at 7:58 pm.

Tonight's program is by Jim Kvasnicka, PAC Observing Chair, and is all about "Astronomical League Observing Programs".

NASA Releases Images of Artemis II's Flight Behind the Moon

Matthew Williams,, Universe Today

NASA's Artemis II mission has completed its pass of the far side of the Moon, establishing a new distance record for a crewed spaceflight, over 400,000 km (250,000 mi) from Earth. And in the process, its four-person crew is capturing images of lunar regions no human has ever seen! Fortunately for the rest of us, they are beaming these images home and providing a treasure trove of scientific data in the process. The images, released on Tuesday, were captured by the crew on April 6th during their seven-hour flyby of the far side of the Moon.

Earthset captured through the Orion spacecraft window at 6:41 p.m. EDT, April 6, 2026, during the Artemis II crew's flyby of the Moon. Credit: NASA

The crew, consisting of NASA astronauts Reid Wiseman, Victor Glover, Christina Koch, and CSA (Canadian Space Agency) astronaut Jeremy Hansen, took thousands of pictures using what NASA describes as a "fleet" of cameras. Several have been released so far (which you can access here), and many more are expected in the coming days as the crew heads home to Earth. The images feature impact craters, ancient lava flows, and surface fractures that are a historical record of the Moon's geological evolution.

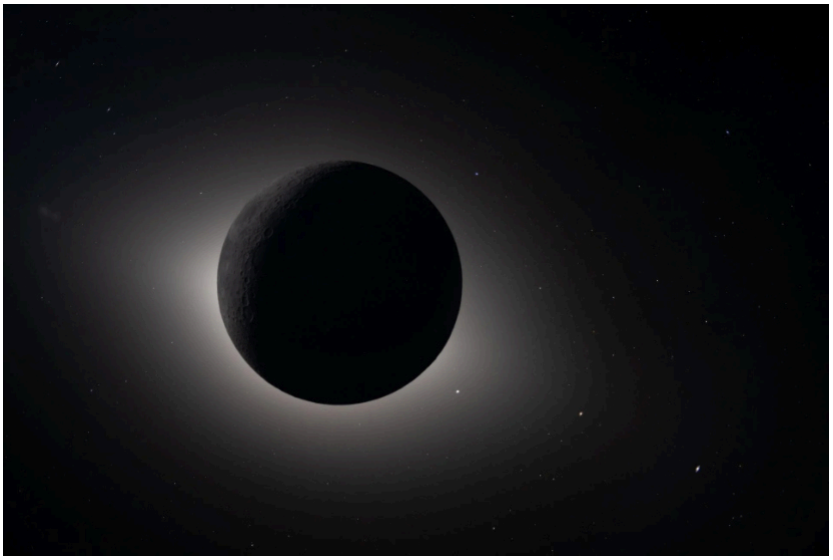
“Our four Artemis II astronauts — Reid, Victor, Christina, and Jeremy — took humanity on an incredible journey around the Moon and brought back images so exquisite and brimming with science, they will inspire generations to come," said Dr. Nicky Fox, associate administrator, Science Mission Directorate, NASA Headquarters in Washington. The images also captured an earthrise and an earthset (similar to what the Apollo missions witnessed), some rare solar eclipse views of the Sun's corona, and six impact flashes caused by meteoroids.

Artemis II, continued

NASA scientists are analyzing the images, audio, and data on these impacts and comparing them with observations by amateur astronomers. These will help scientists refine the timing and locations of these events. The new images will also help NASA scientists to better understand the Moon's geology and inform future exploration and science missions. All of this will lay the foundations for future exploration and science missions, as well as for the creation of permanent habitats around the South Pole-Aitken Basin. Said Jacob Bleacher, NASA's chief exploration scientist at the agency's headquarters:

The lunar surface fills the frame in sharp detail, as seen during the Artemis II lunar flyby, while a distant Earth sets in the background. Credit: NASA

"It was remarkable listening to the crew describe the stunning views during the flyby. At first, their descriptions didn't quite match what we were seeing on our screens. Now that higher resolution images are coming down, we can finally experience the moments they were trying to share and truly appreciate the scientific return provided by these images and our other research on this mission.



Captured by the Artemis II crew during their lunar flyby on April 6, 2026, this image shows the Moon fully eclipsing the Sun. Credit: NASA

Focus on Constellations: Canes Venatici

Jim Kvasnicka

Canes Venatici

Canes Venatici, the Hunting Dogs, is a constellation with few stars but rich in galaxies. Almost all of the galaxies in Canes Venatici are visible in a small telescope. Looking towards Canes Venatici we seem to be looking through three layers of galaxy groups. The closest group the Canes Venatici I Cloud is an average of 20 million light years distant. It includes M94 and M106. The next group the Canes Venatici II Cloud is centered 35-40 million light years away and includes M51 and M63. The third layer of galaxies in Canes Venatici is 70-80 million light years distant. Besides the four Messier galaxies, M51, M63, M94, and M106, Canes Venatici contains one of the three brightest globular clusters in the northern hemisphere in M3. The constellation Leo is best seen in May.

Showpiece Objects

Galaxies: M51, M63, M94, M106, NGC 4244, NGC 4449, NGC 4631, NGC 5005

Globular Clusters: M3

Multiple Stars: Alpha Canes Venatici (Cor Caroli), 2 Canes Venatici

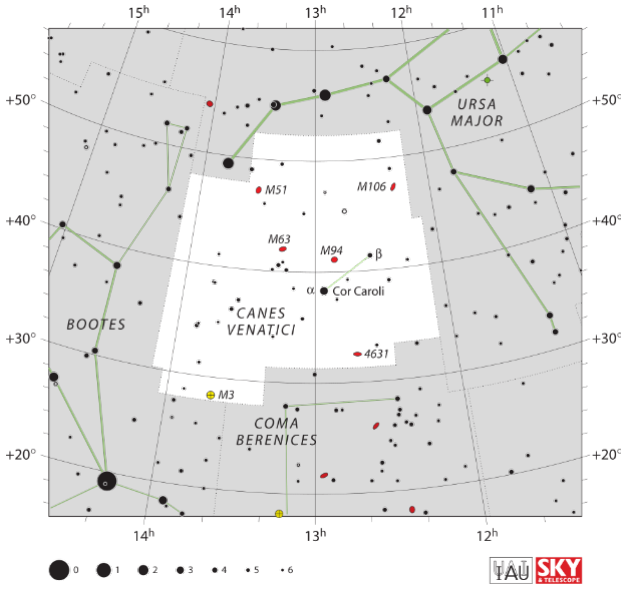
Mythology

Canes Venatici was introduced by the Polish astronomer Johannes Hevelius in 1690. It represents the two dogs Asterion and Chara, both held on a leash by Bootes as they chase the Great Bear around the North Pole.

Number of Objects Magnitude 12.0 and Brighter

Galaxies: 44

Globular Clusters: 1



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May Observing

Jim Kvasnicka

This is a partial list of objects visible for the upcoming month.

Planets
Mercury: Superior conjunction on May 14. Sets an hour and 50 minutes after the Sun.
Venus: Evening planet at magnitude -3.9, sets 3 hours after the Sun.
Mars: Morning planet but difficult to see in dawn twilight.
Jupiter: Evening planet in Gemini at magnitude -2.0 with a disk 34.64" wide.
Saturn: Morning planet, difficult to see.
Uranus and Neptune: Not visible.

Messier List
M49: Galaxy in Virgo.
M51: The Whirlpool Galaxy in Canes Venatici.
M61: Galaxy in Virgo.
M63: The Sunflower Galaxy in Canes Venatici.
M64: The Black Eye Galaxy in Coma Berenices.
M85: Galaxy in Coma Berenices.
M94: Galaxy in Canes Venatici.
M101: The Pinwheel Galaxy in Ursa Major.
M102: Galaxy in Draco.
M104: The Sombrero Galaxy in Virgo.

Last Month: M40, M65, M66, M95, M96, M105, M106, M108, M109
Next Month: M58, M59, M60, M84, M86, M87, M88, M89, M90, M91, M98, M99, M100

NGC and other Deep Sky Objects
NGC 4244: The Silver Needle Galaxy in Canes Venatici.
NGC 4565: The Needle Galaxy in Coma Berenices.
NGC 4651/4656: The Whale Galaxy and Hockey Stick galaxies in Canes Venatici.
NGC 4666: Elongated galaxy in Virgo.
NGC 4754/4762: Galaxy pair in Virgo.

Double Star Program List
Kappa Bootis: Yellow and blue stars.
Iota Bootis: Yellow and dim blue pair.
Pi Bootis: Pair of white stars.
Epsilon Bootis: Yellow and greenish yellow stars.
Xi Bootis: Yellow pair.
Delta Bootis: Yellow primary with a blue-white secondary.
Mu Bootis: Two yellow stars.
Zeta Corona Borealis: Light blue and greenish yellow stars.

Challenge Object
Markarian's Chain: Galaxy group along the Virgo and Coma Berenices border. How many can you fit in your FOV?

Club Outreach

Don Hain
dhain00@gmail.com
402-440-5318

Astronomy night provided a great opportunity for folks in Lincoln to get out and meet Nebraska entities involved with science here in Nebraska. Jack Northrup who is a science educator and owns/manages the Rolling Bluffs Planetarium was graceful enough to help us out at the PAC booth. We had a lot more interaction with the public than would have otherwise been possible. Much thanks to Jack for the help. One of the items Jack worked some of the visitors to the booth through was arranging a puzzle of the night skies that Brett Boller created as a set of four coasters. That got a lot of attention throughout the evening. I tended to the table where we again had the LEGO based Earth-Moon-Sun orrery. The orrery provided a way to transition easily to describing why we see Orion and The Summer Triangle at opposite times of the year.

Vega and Altair are the main players in the Qix(Chinese) / Tanabata(Japanese) story. From the Japanese perspective, Vega is the

young goddess Orihime. She is so interested in weaving that she is not at first interested in getting to know others. She however gets introduced to a cow herder boy (Altair) who goes by the name Hikoboshi. They get along so well they forget their interests to the point that the weaving and cow herding come to a halt. The father or mother (depending on the story) end up separating them by the Milky Way to get them back to assuming their responsibilities in life. … As part of the night's efforts, the youngsters were invited to add Post It note stickies to a glass rail around one of the elephant reproductions at Morrill Hall. The efforts were successful in adding enough Post It notes to the magpie's wings that Orihime and Hikoboshi would be able to see each other on the Chinese/Japanese equivalent of Valentine's Day. The story mentions that when a magpie turnout of insufficient count, we would have expected rain. Tears the two friends shed in years when the magpie gathering is not large enough to complete the structure.

As mentioned in the last newsletter, discussions about Vega would also lead to talks about the movie and book "Contact" by Carl Sagan with the help of his wife Ann Druyan.

Club Outreach

Upcoming event(s):

Lincoln Children's Museum - Space Explorers presentation
When: Friday, May 29, 2026 (morning)
Where: Lincoln Children's Museum
Sponsored by: (the above)
Needs: needs have been met for this as the Museum will supply a few aides
Website reference: https://lincolnchildrensmuseum.org/camps/camps.html

Hyde Observatory: OPEN

When: Saturday nights … and other nights for groups per request
Where: Hyde Observatory
Sponsored by: Lincoln Parks and Rec / Hyde Board of Directors
Special Group nights: per requests to Pioneers Park Nature Center at 4024417895 or naturecenter@lincoln.ne.gov
Needs: volunteers willing to work out on the deck or manage the shows in the classroom about one Saturday per month, or nights scheduled by request of a group

See https://www.hydeobservatory.info/volunteer/ for more information

See https://forms.gle/ZKr4ivapvUhfejwL6 for the volunteer form to get paperwork with the city started. Since Hyde offers the activity through city government a background check is needed. Submission of this form will get that going.

‘Interstellar Glaciers’: NASA’s SPHEREx Maps Vast Galactic Ice Regions

NASA’s SPHEREx (Spectro-Photometer for the History of the Universe, Epoch of Reionization, and Ices Explorer) mission has mapped interstellar ice at an unprecedented scale. Covering regions in our Milky Way galaxy more than 600 light-years across, the ice was found inside giant molecular clouds — vast regions of gas and dust where dense clumps of matter collapse under gravity, giving birth to stars. A study describing these findings published Wednesday in The Astrophysical Journal.

One of SPHEREx’s main goals is to map the chemical signatures of various types of interstellar ice. This ice includes molecules like water, carbon dioxide, and carbon monoxide, which are vital to the chemistry that allows life to develop. Researchers believe these ice reservoirs, attached to the surfaces of tiny dust grains, are where most of the universe’s water is formed and stored. The water in Earth’s oceans — and the ices in comets and on other planets and moons in our galaxy — originates from these regions.

“These vast frozen complexes are like ‘interstellar glaciers’ that could deliver a massive water supply to new solar systems that will be born in the region,” said study coauthor Phil Korngut, the instrument scientist for SPHEREx at Caltech in Pasadena, California. “It’s a profound idea that we are looking at a map of material that could rain on nascent planets and potentially support future life.”

Thanks to its spectral capabilities, SPHEREx can measure the amounts of various ices and molecules, such as polycyclic aromatic hydrocarbons, in and around molecular clouds, helping scientists better understand their composition and environment.

Although space telescopes such as NASA’s James Webb Space Telescope and the agency’s retired Spitzer have detected water, carbon dioxide, carbon monoxide, and other icy molecules throughout our galaxy, the SPHEREx observatory is the first infrared mission specifically designed to find such molecules over the entire sky via the mission’s large-scale spectral survey.

“We expected to detect these ices in front of individual bright stars: The light from a star acts like a spotlight, revealing any ice in the space between us and that star. But this is something different,” said lead author Joseph Hora, an astronomer at the Center

SPHEREx, continued

for Astrophysics (CfA) at Harvard & Smithsonian in Cambridge, Massachusetts. "When looking along the galactic plane — where most of the stars, gas, and dust of our galaxy are concentrated — there's a lot of diffuse background light shining through entire dust clouds, and SPHEREx can see the spatial distribution of the ices they contain in incredible detail."

Managed by NASA's Jet Propulsion Laboratory in Southern California, the SPHEREx observatory launched March 11, 2025, and has the unique ability to see the sky in 102 colors, each representing a different wavelength of infrared light that offers distinctive information about galaxies, stars, planet-forming regions, and other cosmic features. By late 2025, SPHEREx had completed the first of four all-sky infrared maps of the universe, charting the positions of hundreds of millions of galaxies in 3D to help answer major questions about the cosmos, including those about the origins of water and life.

Icy origins

Using the SPHEREx maps of various icy molecules, the study's authors were able to look deep into many molecular clouds in the Cygnus X and North American Nebula regions of the Milky Way. In the densest areas, where the amount of dust is greatest, dark filamentary lanes block the visible light from the stars behind. With its infrared eye, the space telescope also revealed where the different ices — which absorb specific wavelengths of infrared light that would pass through the clouds if they consisted only of dust — are at their densest.

This finding supports the hypothesis that interstellar ice forms on the surface of tiny dust particles, which are no larger than particles found in candle smoke, and that the dense regions of dust shield the ices from the intense ultraviolet radiation emitted by newborn stars. However, not all ices are treated the same way in the interstellar medium.

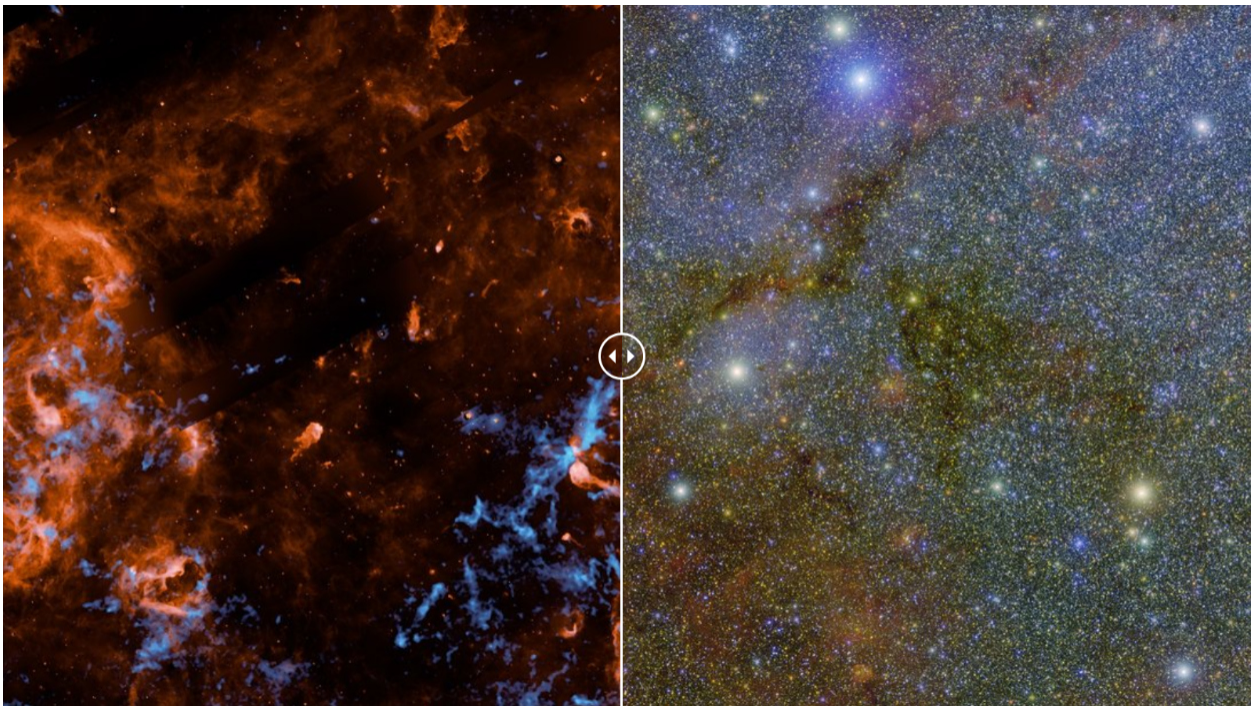
"We can investigate the environmental factors that contribute to different ice formation rates across large areas of interstellar space," said study coauthor Gary Melnick, also an astronomer at the CfA. "The SPHEREx mission's 'big picture' view provides valuable new information you can't get when zooming in on a small region."

Within this broad perspective, adds

SPHEREx, continued

Melnick, SPHEREx can do something ground-based observatories cannot: detect varying amounts of water and carbon dioxide, two ices that respond differently to environmental factors. For example, the presence of intense ultraviolet light from nearby massive young stars or the heating of these dust grains by that light affects the abundances of different ices in distinct ways.

This is just the beginning for the mission. Observations from SPHEREx will provide scientists with a powerful tool to explore the various components of our galaxy, the physics of the interstellar medium that lead to star and planet formation, and the chemical processes that deliver molecules essential for life to newly formed planets.

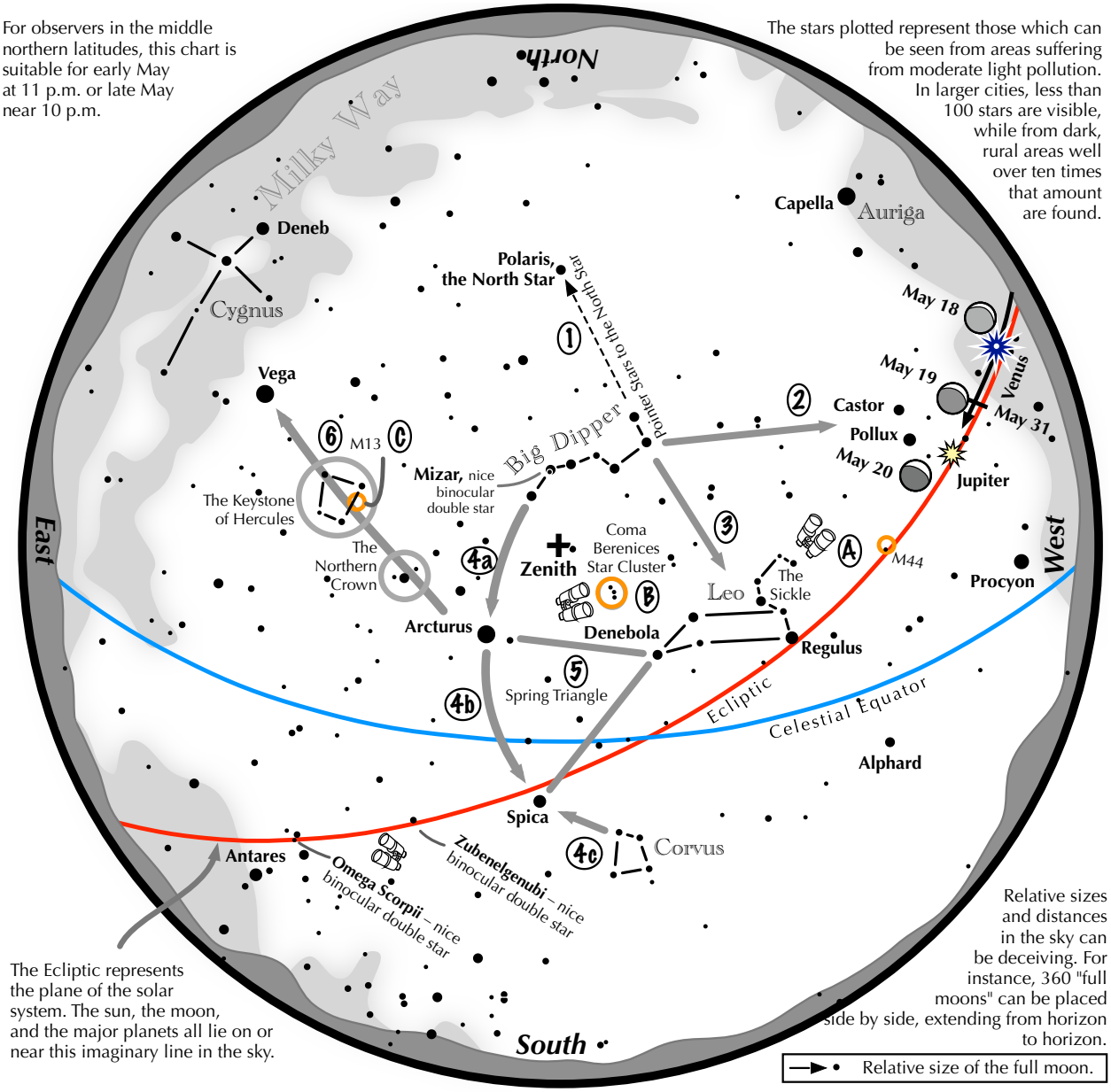


These observations made by NASA's SPHEREx mission reveal vast frozen complexes in the Cygnus X star-forming region of the Milky Way galaxy. Water ice, shown as bright blue structures at left, exactly overlays the dark lanes of interstellar dust, shown in different wavelengths at right. Credit: NASA/JPL-Caltech/IPAC/Hora et al.

Navigating the May Night Sky

For observers in the middle northern latitudes, this chart is suitable for early May at 11 p.m. or late May near 10 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

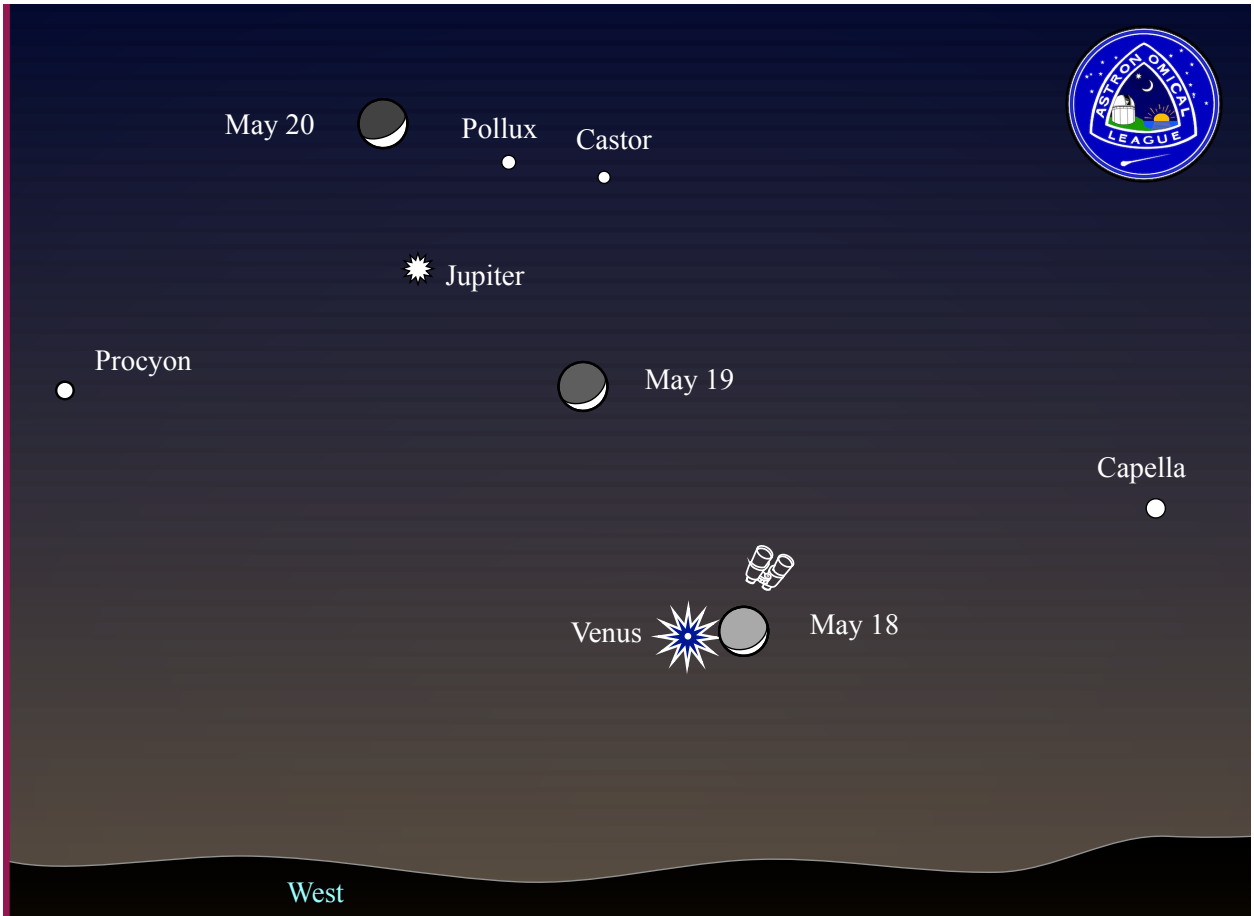
Relative size of the full moon.

Navigating the May night sky: Simply start with what you know or with what you can easily find.

1. Extend a line northward from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
3. Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
4. Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica. Confirm Spica by noting that two moderately bright stars just to its southwest form a straight line with it.
5. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
6. Draw a line from Arcturus to Vega. One-third of the way sits "The Northern Crown." Two-thirds of the way hides the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.

Binocular Highlights
A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **B:** Look near the zenith for the loose star cluster of Coma Berenices. **C:** M13, a round glow from a cluster of over 500,000 stars.

Astronomical League Outreach



If you can see only one celestial event this month, see this one.

The crescent moon passing Venus then Jupiter

Look to the west-northwest 60 minutes after sunset on May 18, 19, and 20.

- On the first evening, the crescent moon full with earthshine glows immediately next to brilliant Venus.
- The next evening finds a somewhat thicker crescent moon sitting midway between Venus and Jupiter.
- On May 20, the moon lies above Jupiter and in a line with Castor and Pollux.
- The bright stars Capella and Procyon act as boundaries helping frame the scene.

End your day with this magical scene!

Astrophotography

M51 (Messier 51), aka the Whirlpool Galaxy by Jim White
44 - 6 minute exposures (4 hours and 20 minutes total exposure time)
Dark, Flat and Dark Flat calibration frames, Telescope - Celestron 925 EdgeHD
Mount - Celestron CGX, Camera - ZWO ASI2400MC Pro
Celestron OAG (Off Axis Guider),Guide camera - ZWO ASI174MM Mini
Camera and mount control software - CPWI, N.I.N.A., PHD2 and Stellarium
Processing software - PixInsight

Astrophotography

By Scott Spaulding

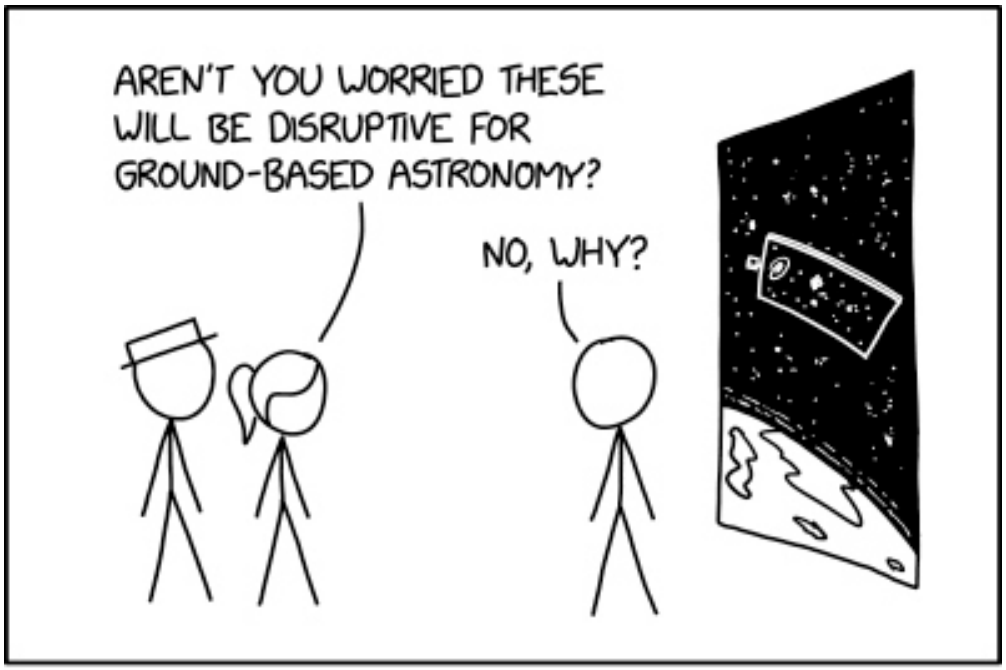
Here are two images from the Seestar S30 Pro from Mauna Kea, Hawaii on our last day just before sunrise. After waiting four days with a continuous flood warning for the entire island, the storm passes. I checked the weather with a tentative plan to drive up to Mauna Kea and get above the low clouds and see a forecasted window about two hours before sunrise as the Milky Way core is just visible on the southern horizon and C/2025 R3 (PanSTARRS) rising in the east (Seestar stacked and processed, 10 second exposures for 8 minutes). The second image was a short session of M51, Whirlpool galaxy as high cloud was still transiting parts of the sky (Seestar stacked and processed, 10 second exposures for 31 minutes).

Astrophotography

M33 from last November 2025 by Russ Genzmer
Telescope - Askar 103 mm APO, Mount - Skywatcher EQ 6 R Pro
Main camera - ZWO ASI 294 MC, Filter - Antlia Triband Ultri II
Guide Camera - ZWO ASI Mini 120mm, Guide scope - ZWO ASI 30mm
Focuser - ZWO - Electronic Automatic Focuser, Computer - ZWO ASI Air Plus
360-180 second subs, Pre and Post Processing Pixinsight

Astrophotography

NGC 4565 and 4562 by Brett Boller, April 14 2026
Askar FRA600 600mm @ F5.9 - ZWO ASI2600MC Pro Duo
Lights: 85x 180 Seconds Darks/Flats/Dark Flats/Bias: 100/100/100/0
Friend, Nebraska



MY NEW COMPANY IS BEING CRITICIZED FOR OUR SATELLITES THAT DEPLOY 100-MILE-WIDE BANNERS PAINTED WITH INACCURATE PICTURES OF THE NIGHT SKY.

xkcd.com

From the Archives, May, 2016

Boller-Sivill Observatory Construction is Underway

Brett Boller & Brian Sivill

The Boller-Sivill roll-off observatory at Branched Oak Observatory is officially underway! On Saturday, May 7, Brett and I embarked on an overly ambitious plan to get concrete footings poured for Brett's 12 foot by 24 foot structure design. Delays set in from the start, having to go to the South Home Depot for some rental equipment, then discovering they only had the two-man auger, not the drill bit.... say what? When we called, we presumed you would have told us THAT PART. Nearly every step of our initial day was delayed or interfered with. Fortunately, Matt Anderson with Branched Oak Observatory recommended we call a nice guy down the road who has really cool equipment. One phone call later, we had Sunday scheduled with a very generous Doug Buhrman and his tractor-mounted hole auger. On Sunday, Doug and I got the six foundation holes dug along with two holes for telescope piers! Sketchy weather was playing havoc with our ability to work at the now muddy site. A few days with some volunteer help I had rounded-up produced very little further progress - until Brett and his dad, Bill, came out Wednesday (today).

Brett and Bill finished setting the forms in place, and mixed and poured all of the primary structure footings. Progress is very tangible now! Our mission: To build an observatory where we can perform astrophotography, and eventually, do it remotely. We intend to partner with PAC – providing members support a shared investment concept. In any case, the Boller-Sivill observatory will have several telescopes, plus a tracking platform intended to permit astrophotography for any club member with a DLSR. We have big plans and ideas, and we now have real, tangible progress.

MEMBERSHIP INFO

REGULAR MEMBER - $30.00 per year. Includes club newsletter, and 1 vote at club meetings, plus all other standard club privileges.

FAMILY MEMBER - $35.00 per year. Same as regular member except gets 2 votes at club meetings.

STUDENT MEMBER - $10.00 per year with volunteer requirement.

If you renew your membership prior to your annual renewal date, you will receive a 10% discount.

Club members are also eligible for special subscription discounts on Sky & Telescope Magazine.

CLUB TELESCOPES

To check out one of the club telescopes, please contact a club officer. Scopes can be checked out at a regular club meeting and kept for one month. Checkout can be extended for another month if there are no other requests for the telescope, but you must notify a club officer in advance.
100mm Orion refractor: Available
10 inch Meade Starfinder Dobsonian: Available.
13 inch Truss Dobsonian: Needs repair.
10 inch Zhumell: Needs mount.

Buy the book! The Prairie Astronomy Club: Fifty Years of Amateur Astronomy. Order online from Amazon or lulu.com.

ADDRESS

The Prairie Astronomer
c/o The Prairie Astronomy Club, Inc.
P.O. Box 5585
Lincoln, NE 68505-0585
info@prairieastronomyclub.org

The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc. Membership expiration date is listed on the mailing label. Membership dues are: Regular $30/yr, Family $35/yr. Address all new memberships and renewals to: The Prairie Astronomy Club, Inc., PO Box 5585, Lincoln, NE 68505-0585. For other club information, please contact one of the club officers listed to the right. Newsletter comments and articles should be submitted to: Mark Dahmke, P. O. Box 5585, Lincoln, NE 68505 or mark@dahmke.com, no less than ten days prior to the club meeting. The Prairie Astronomy Club meets the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, NE.