The Prairie Astronomer

February, 2026 Volume 67, Issue #2

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Prairie Astronomy Club

Night Sky Network

THE NEWSLETTER OF THE PRAIRIE ASTRONOMY CLUB

The Prairie Astronomer

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

Next meeting: Tuesday February 24th 7:30pm at Hyde Observatory

NEXT MEETING

February: How to Use Your Telescope

The Prairie Astronomy Club will offer its annual program: "How to Use Your Telescope" on February 24th at 7:30pm. Do you own a telescope and need help getting started using it? The Prairie Astronomy Club would like to help. If you own a telescope and need some hands-on assistance, or are just interested and want to learn more, stop by!

March: AL Observing Programs

Jim Kvasnicka will be looking at the many different observing programs offered through the Astronomical League that PAC members can do. There are observing programs designed for the beginner just starting and those with years of observing experience. He will do an overview of the different observing programs and what is required to start an observing program.

CONTENTS

Cover: IC 2118: The Witch Head Nebula by Brett Boller

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

February PAC Meeting
Tuesday, February 24th, 7:30pm, Hyde Observatory
Program: How to Use Your Telescope

March PAC Meeting
Tuesday, March 31st, 7:30pm, Hyde Observatory
Program: AL Observing Programs

April PAC Meeting
Tuesday, April 28th, 7:30pm, Hyde Observatory

May PAC Meeting
Tuesday, May 26th, 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
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Outreach Coordinator	Don Hain dhain00@gmail.com
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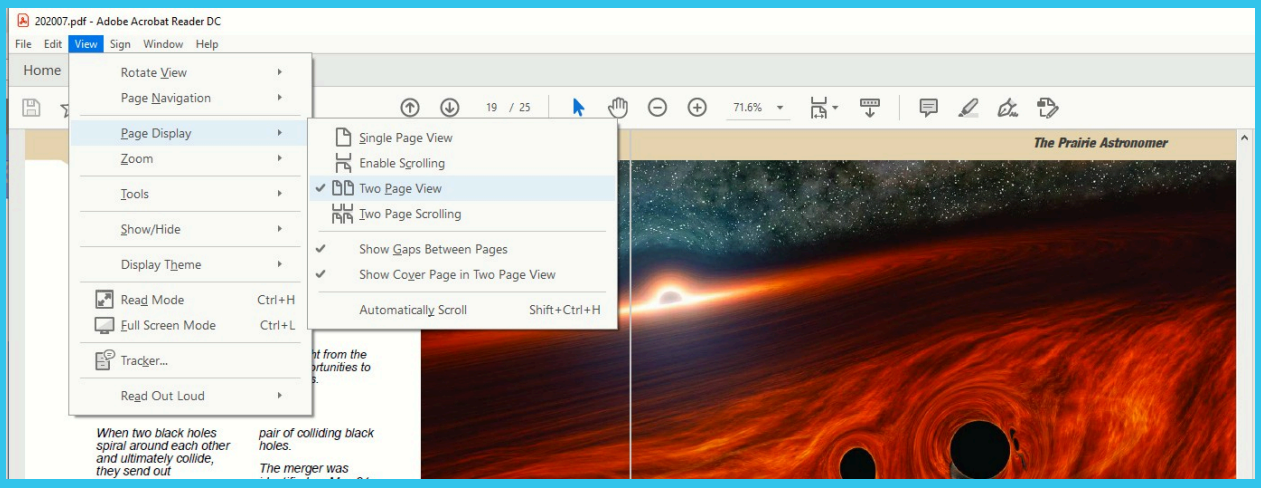
NOTICES

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

The President's Message

Dear PAC Members,

I want to start by thanking everyone who attended our last meeting and helped make it a fun evening. We enjoyed exploring some of the lighter and more humorous moments in astronomy. It was refreshing to look at the side of our hobby that we do not always get to see. Thank you to everyone who came out and shared in the laughter.

I also owe everyone an apology for the late start. I ran into some unexpected hardware challenges while setting up the presentation, and it took a bit longer than planned to get everything working. I really appreciated your patience while I sorted it out. Thank you for sticking with me.

Looking ahead, our February meeting will be our annual "How to Use Your Telescope" class at Hyde Observatory on February 24th at 7:30 pm. This is one of our most important outreach events of the year. Many people received telescopes over the holidays and are eager to learn how to use them properly. I encourage you to share the invitation with friends, family, coworkers, and anyone who might benefit. This is also a great opportunity for members to come out and help others get started in our hobby with confidence.

In March, Jim Kvasnicka will present on the Astronomical League Observing Programs. The last time Jim gave this program, it was extremely helpful in explaining what the observing programs are, how to begin, and what is required to complete them. Jim has served as our Observing Chair for many years and has done a tremendous amount for the club. If you have ever considered starting an observing program or simply want to learn more about them, I encourage you to attend.

We also have several volunteer opportunities coming up, including Astronomy Night at Morrill Hall, Cub Scout stargazing at Pawnee Lake, and ongoing volunteer needs at Hyde Observatory. More information about these opportunities can be found in the newsletter.

Thank you all for your continued engagement and support of PAC. I look forward to seeing everyone at our February meeting on Tuesday, the 24th at 7:30 pm at Hyde Observatory.

Clear skies,

Jason O'Flaherty

Meeting Minutes

Jim White

Jason O'Flaherty started the meeting at 7:48 PM. Tonight's meeting is being held in person at Hyde Observatory and online via Zoom. Jason announced that we have one new member this month, Phil Heywood. We have two visitors at tonight's meeting, Neil and Lucy. At 7:50 Jason turned the meeting over to Jim Kvasnicka for his monthly observing report.

Jim said that February's star parties are scheduled for Friday February 13th and Friday the 20th at the Clatonia Recreation Area which is located approximately 1 ½ miles north of Clatonia Nebraska. Planets for February, Venus is an evening planet and sets about 70 minutes after sunset toward the end of the month, Mars is too close to the sun to be seen, Jupiter is an evening planet in Gemini, Saturn is an evening planet in Pisces, Uranus is just south of the Pleiades in Taurus, Neptune is an evening planet in Pisces and Mercury is an evening planet. Jim's complete observing report can be found in the newsletter. Jim announced that he had received the Gold Level Comet Observing Program award for observing 30 comets. He received the Silver Level award a number of years ago for observing 12 comets. He completed the Gold award during an observing trip to Gracie Creek last fall. He started the comet observing program back in 2006. As of this year it will be Jim's 20th year as Observing Chair for PAC. If you are interested in any of the observing programs or just want to know where to start just see Jim, he would be happy to answer any questions and get you started on your observing journey. Amos has contacted Jim about doing a program at our March meeting about observing programs that are available. At 7:56 Jim turned the meeting back over to Jason who turned the meeting over to John Reinert, PAC Treasurer.

John put an article in the December newsletter about club dues and timing for the payment of dues which he would like to discuss at tonight's meeting. John would like to see if we can annualize dues payment so that all dues are due at the same time each year versus our current lunar dues cycle where dues are renewed in the month that each member joined the club. John has created a dues proration table and a spreadsheet to show what a member would owe in dues currently to get everyone's dues annualized to November 1st. John would like to propose that we forgo the 10 percent discount for paying early and changing the dues amounts, (which haven't changed in 20 years), from 10 dollars to 12

dollars per year for students and the family rate to 36 dollars from 35 dollars per year. Individual dues would remain the same at 30 dollars per year. The changes in dues amounts make the math easy for the proration table because all dues would be easily divisible by twelve. Jason questioned whether the 10 percent discount would then come back once everyone was on the annualized cycle and John said that would be possible depending on the club budget and could possibly lead to a reduction in dues, this would of course depend on what the club has planned for a particular budget cycle. The question was brought up about whether or not this proposal could be voted on now or had to wait due to the club bylaws but it was determined that the bylaws don't have a clause about the dues amount. Since we have a quorum of the membership in attendance we just need a simple majority to approve the proposal. Bob Kacvinski made a motion to vote on the proposal and that motion was seconded by Jim White. Jason asked that those online come on camera or on mic to vote for or against the proposal and the online attendees voted to approve the proposal. Next the proposal was brought to a vote to those in attendance in person at Hyde and the proposal was approved unanimously. The meeting was turned back over to Jason.

There was no other new club business. Jason announced that in the last newsletter there was an announcement the Robert (Doc) Manthey, a past club member, vice president and Hyde volunteer, had passed away on 12/23/2025 at 103 years old.

Our next club meeting on February 24th at Hyde is going to be our annual how to use your telescope event, for members and the general public. Jason announced that he had put together a list of astronomy related events happening for 2026 in the last newsletter.

Don Hain was asked about upcoming volunteer opportunities. Don said that Cosmos and Cocktails is coming up which the club has participated in previously but is not this year. Cosmos and Cocktails is being held at Morrill Hall on the UNL campus and is a 21 and over event with an advance ticket required. There may be an event upcoming at the Lied Lodge at Nebraska City but Don hasn't gotten any information back on it so he is going to reach out and see if volunteers are still needed and will try and get any info added to the newsletter. Astronomy Night should be coming up at UNL Morrill Hall. Tonight's meeting ended at 8:14 PM.

Tonight's presentation is "Outtakes, Bloopers and Funny Things that happened in The World of Space".

ARP 89

The Mantrap Skies Image Catalog

Arp 89 also known as NGC 2648 and KPG 168, is classed by Arp under spiral galaxy with large, high surface brightness companion. The main galaxy is also cataloged as NGC 2648 with the companion being CGCG 060-036/PGC 24469. The KPG designation though is for both and stand for "Karachentsev Isolated Pairs of Galaxies Catalogue". These two sure are isolated. Nothing but faint distant galaxies with little available data are in my 1" per pixel image. The main galaxy is classed as a Sb spiral by NED but the NGC Project and Seligman say Sa. Usually you'd see such a galaxy as having rather blue arms. In this case it is rather uniformly the reddish yellow color of most S0 galaxies. One paper even remarked on its completely flat color profile. Until I read that I was wondering about my processing, I just couldn't eke out any blue in the arms no matter what I did. NGC 2648 was discovered by William Herschel on March 19, 1784 but isn't in either Herschel 400 observing program.

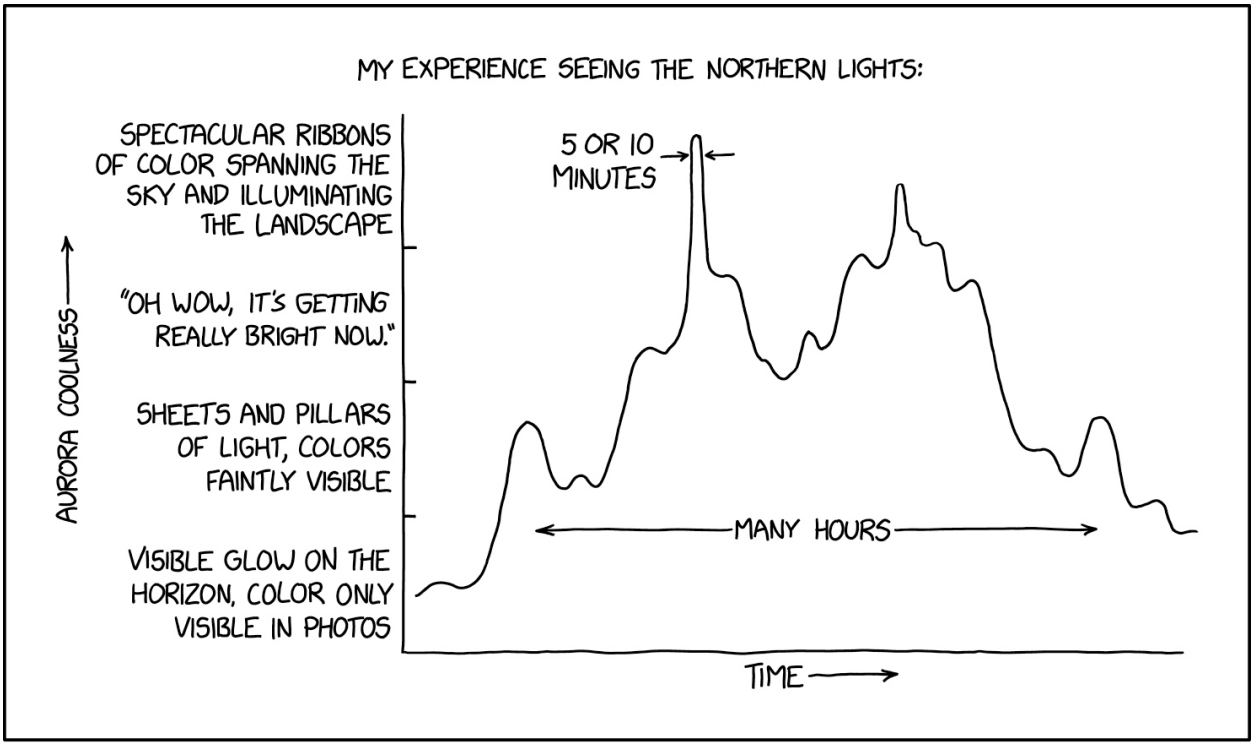
The companion, classed as Sc by NED and S? pec by Seligman,

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 89, continued

however, looks like a typical interacting spiral with nice vivid blue arms indicating new star formation is going on there. It also shows some tidal distortion with blue stars ripped from its arms. The main galaxy seems totally immune to the interaction with no new stars and no distortions. Odd. Both are about 107 million light-years away so are likely really interacting. They are found in the constellation of Lynx.



AURORA TIP: IF YOU GET GOOD VIEWS OF THE AURORA, KEEP WATCHING THE SKY; YOU MIGHT SUDDENLY GET GREAT ONES.

xkcd.com

NASA's Juno Measures Thickness of Europa's Ice Shell

Results from the solar-powered spacecraft provide a new measurement of the thickness of the ice shell encasing the Jovian moon's ocean.

Data from NASA's Juno mission has provided new insights into the thickness and subsurface structure of the icy shell encasing Jupiter's moon Europa. Using the spacecraft's Microwave Radiometer (MWR), mission scientists determined that the shell averages about 18 miles (29 kilometers) thick in the region observed during Juno's 2022 flyby of Europa. The Juno measurement is the first to discriminate between thin and thick shell models that have suggested the ice shell is anywhere from less than half a mile to tens of miles thick.

Slightly smaller than Earth's moon, Europa is one of the solar system's highest-priority science targets for investigating habitability. Evidence suggests that the ingredients for life may exist in the saltwater ocean that lies beneath its ice shell. Uncovering a variety of characteristics of the ice shell, including its thickness, provides crucial pieces of the puzzle for understanding the moon's internal workings and the potential for the existence of a habitable environment.

The new estimate on the ice thickness in the near-surface icy crust was published on Dec. 17 in the journal Nature Astronomy.

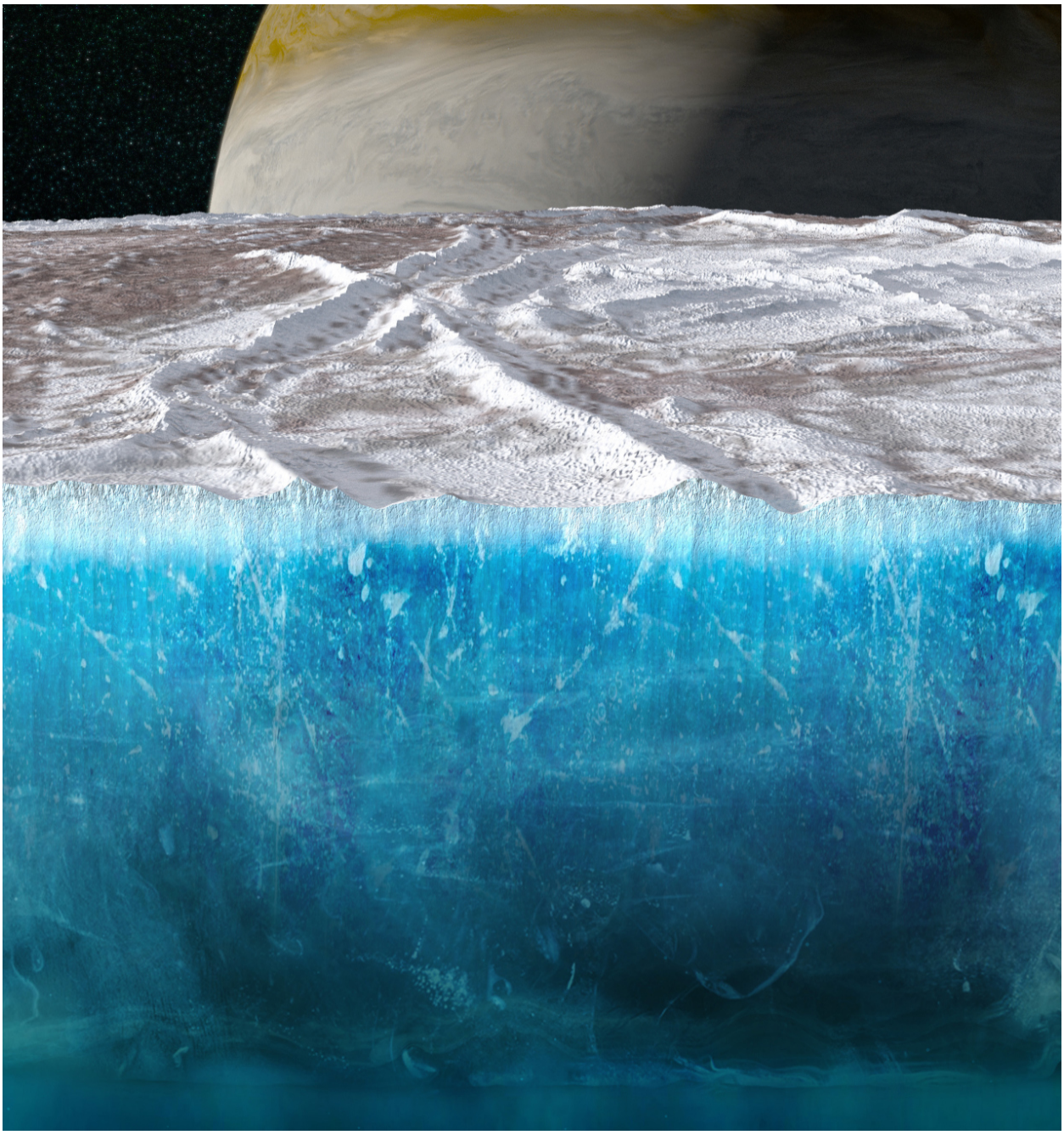
Catching waves

Although the MWR instrument was designed to investigate Jupiter's atmosphere below the cloud tops, the novel instrument has proven valuable for studying the gas giant's icy and volcanic moons as well.

On Sept. 29, 2022, Juno came within about 220 miles (360 kilometers) of Europa's frozen surface. During the flyby, MWR collected data on about half the moon's surface, peering beneath the ice to measure its temperatures at various depths.

"The 18-mile estimate relates to the cold, rigid, conductive outer-layer of a pure water ice shell," said Steve Levin, Juno project scientist and co-investigator from NASA's Jet Propulsion Laboratory in Southern California, which manages the mission. "If an inner, slightly warmer convective layer also exists, which is possible, the total ice shell thickness would be even greater. If the ice shell contains a modest amount of dissolved salt, as suggested by some models, then our estimate of the shell thickness would be reduced by about 3 miles."

Juno, continued



This artist's concept depicts a cutaway view showing Europa's ice shell. Data used to generate a new result on the ice thickness and structure was collected by the microwave radiometer instrument on NASA's Juno during a close flyby of the Jovian moon ... Credit: NASA/JPL-Caltech/SwRI/Koji Kuramura/ Gerald Eichstädt (CC BY)

Juno, continued

The thick shell, as suggested by the MWR data, implies a longer route that oxygen and nutrients would have to travel to connect Europa's surface with its subsurface ocean. Understanding this process may be relevant to future studies of Europa's habitability.

Cracks, pores

The MWR data also provides new insights into the makeup of the ice just below Europa's surface. The instrument revealed the presence of "scatterers" — irregularities in the near-surface ice such as cracks, pores, and voids that scatter the instrument's microwaves reflecting off the ice (similar to how visible light is scattered in ice cubes). These scatterers are estimated to be no bigger than a few inches in diameter and appear to extend to depths of hundreds of feet below Europa's surface.

The small size and shallow depth of these features, as modeled in this study, suggest they are unlikely to be a significant pathway for oxygen and nutrients to travel from Europa's surface to its salty ocean.

"How thick the ice shell is and the existence of cracks or pores within the ice shell are part of the complex puzzle for understanding Europa's potential habitability," said Scott Bolton, principal investigator of Juno from the Southwest Research Institute in San Antonio. "They provide critical context for NASA's Europa Clipper and the ESA (European Space Agency) Juice (JUpiter ICy moons Explorer) spacecraft — both of which are on their way to the Jovian system." Europa Clipper will arrive there in 2030, while Juice will arrive the year after.

Juno will carry out its 81st flyby of Jupiter on Feb. 25.

More about Juno

A division of Caltech in Pasadena, California, JPL manages the Juno mission for the principal investigator, Scott Bolton, of the Southwest Research Institute in San Antonio. Juno is part of NASA's New Frontiers Program, managed at NASA's Marshall Space Flight Center in Huntsville, Alabama, for the agency's Science Mission Directorate in Washington.

Focus on Constellations: Cancer

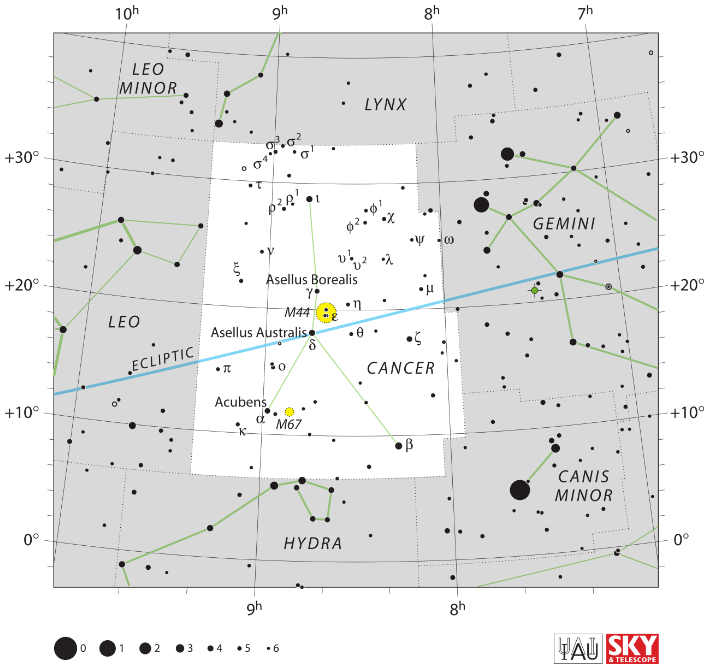
Jim Kvasnicka

Cancer, the Crab, is the faintest of the twelve Zodiacal constellations. A dark moonless night is needed to see its dim stars between Leo and Gemini. Cancer contains two Messier objects, both are open clusters. M44 the Beehive Cluster is more visible than the star patterns in the constellation. The other open cluster is M67. Cancer covers 506 square degrees in the sky. Besides the two Messier open clusters Cancer contains many worthwhile double and multiple stars, and because it is located away from the Milky Way numerous galaxies. Cancer is best seen in the month of March.

<u>Showpiece Objects</u>
Open Clusters: M44 Beehive Cluster, M67
Multiple Stars: Zeta Cancri, Iota 1 Cancri

<u>Mythology</u>
The goddess Juno, who hated Hercules, sent Cancer the Crab to pinch and distract him as he fought with Hydra. However, Hercules simply crushed Cancer with his foot. Juno then elevated the Crab to the heavens as a reward.

<u>Number of Objects Magnitude 12.0 and Brighter</u>
Galaxies: 7
Globular Clusters: 0
Open Clusters: 2
Planetary Nebulae: 0
Dark Nebulae: 0
Bright Nebulae: 0
SNREM: 0



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March Observing

Jim Kvasnicka

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

Planets

Mercury: Dim evening planet, morning planet after March 7, difficult to see.
Venus: Evening planet at magnitude -3.9. Sets 70 minutes after the Sun.
Mars and Neptune: Both are too close to the Sun to be seen.
Jupiter: Evening planet in Gemini. Magnitude -2.4 with a disk 42.8" wide.
Saturn: Evening planet in Pisces, magnitude +0.9 with a disk 15.9" wide.
Uranus: Evening planet in Taurus, magnitude +5.8 with a disk 3.5" wide.

Total Lunar Eclipse

The morning of March 3. Penumbral eclipse begins at 2:44 am, partial eclipse begins at 3:50 am, total eclipse begins at 5:04 am, total eclipse ends at 6:02 am, moonset 7:08 am.

Messier List

M41: Open cluster in Canis Major.
M44: The Beehive Cluster in Cancer.
M46/M47/M93: Open clusters in Puppis.
M48: Open cluster in Hydra.
M50: Open cluster in Monoceros.
M67: Open cluster in Cancer
M81/M82: Galaxy pair in Ursa Major.

Last Month: M1, M35, M36, M37, M38, M42, M43, M45, M78, M79
Next Month: M40, M65, M66, M95, M96, M105, M106, M108, M109

NGC and other Deep Sky Objects

NGC 2438: Planetary nebula, foreground object in M46.
NGC 2440: Planetary nebula in Puppis.
NGC 2451: Open cluster in Puppis, bright and irregular.
NGC 2477: Bright open cluster in Puppis.
NGC 2683: Edge on galaxy in Lynx.
NGC 2775: Galaxy in Cancer.

Double Star Program List

Epsilon Canis Majoris: White and light blue pair.
Delta Geminorum: Wasat, yellow and pale red stars.
Alpha Geminorum: Castor, white primary with a yellow secondary.
12 Lyncis: Close pair of yellow-white stars.
19 Lyncis: White stars.
38 Lyncis: White primary with a yellow secondary.
Zeta Cancri: Yellow and pale-yellow stars.
Iota Cancri: Yellow and pale blue pair.

Challenge Object

NGC 2350: A faint, small, elongated galaxy in Canis Minor.

Club Outreach

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

I contacted the Project Learning Tree | Sustainable Forestry Initiative folks about their previously communicated interest in a stargazing activity. They have decided against an astronomy related event at their conference this year. We do still have a scout pack interested in some activities. We could use a volunteer or two for those, so let me know if you are interested in helping out. The scouts are looking for someone to discuss and look at the stars with them either at Pioneers Park or something similar. Additionally they hope to camp out on April 18th out at Pawnee Lake. There is a rain check date of May 2nd if 4/18 gets cancelled for the camping trip. Send me an email if you would be interested in helping with either of those. The leaders of that pack are stepping down later this year. I will be checking with them to see if the new leaders are still interested in astronomy.

We are beginning to see a bit warmer weather. Jupiter is super easy to find, still up by the Gemini twins. That is such a great planet to get started with for folks getting familiar with the night sky. If you have some young astronomers in your family or your neighborhood Jupiter and the history surrounding it is fun to chat about with people.

Club Outreach

Upcoming event(s):

Astronomy Night
When: Saturday, April 11, 2026 5 to 9 PM
Where: Nebraska State Museum and Planetarium
Needs: volunteers at the PAC table(s) - displaying and talking with folks about an astronomy related topic

Cub Scout Pack - Campout - Stargazing

When: April 18th, 2026 (rain date of May 2nd)
Where: Pawnee Lake
Sponsored by: cub scout pack
Needs: volunteers to help with a star walk or stargazing activity

Club Outreach, continued

Hyde Observatory: OPEN

When: Saturday nights … and other nights for groups per request
Where: Hyde Observatory
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.

Dark Sky Concern: Reflect Orbital

Like most of us, I am concerned about light pollution. Some recent communication I have gotten from the American Astronomical Society (AAS) made me stop and think a bit. If you have an interest / opinion about how we should be handling our night skies, please take a moment to look at the following links.

American Astronomical Society (AAS) Policy Update (19 August 2025)

Assessing Astronomical Impacts of Reflect Orbital's Proposed Satellite System

DarkSky International opposes Reflect Orbital's proposed orbital illumination system

if above links do not work, copy paste the following in your browser:

https://aas.org/posts/news/2025/08/policy-update-19-august-2025

https://docs.google.com/forms/d/e/1FAIpQLSfYW7dw2oGU0y8wyFu-6lA1_aG8o5CiCPUyw8fVWn5uD8x76A/viewform

https://darksky.org/news/organizational-statement-reflect-orbital/

Please consider the concerns brought forward by the AAS and DarkSky International. I personally would be thrilled if many of us took the time to sign the letter proposing that a hard look be taken at this project.

Regardless of whether you take the initiative to sign the open letter or not, keep looking up, and thinking about our place in the universe!

Researchers Discover Hundreds of Cosmic Anomalies with Help from AI

A team of astronomers have used a new AI-assisted method to search for rare astronomical objects in the Hubble Legacy Archive. The team sifted through nearly 100 million image cutouts in just two and a half days, uncovering nearly 1400 anomalous objects, more than 800 of which had never been documented before.

Rare and anomalous objects like colliding galaxies, gravitational lenses and ring galaxies are of immense scientific interest, but they're difficult to find in the growing masses of data from telescopes like the Hubble Space Telescope. Increasingly, astronomers must ask how they can find a cosmic needle in a haystack the size of the Universe.

Recently, researchers David O'Ryan and Pablo Gómez of the European Space Agency developed an AI tool that allows them to inspect millions of astronomical images in a fraction of the time it would take a human. The team trained their tool and demonstrated its capabilities using the Hubble Legacy Archive, which contains tens of thousands of datasets spanning Hubble's long lifetime.

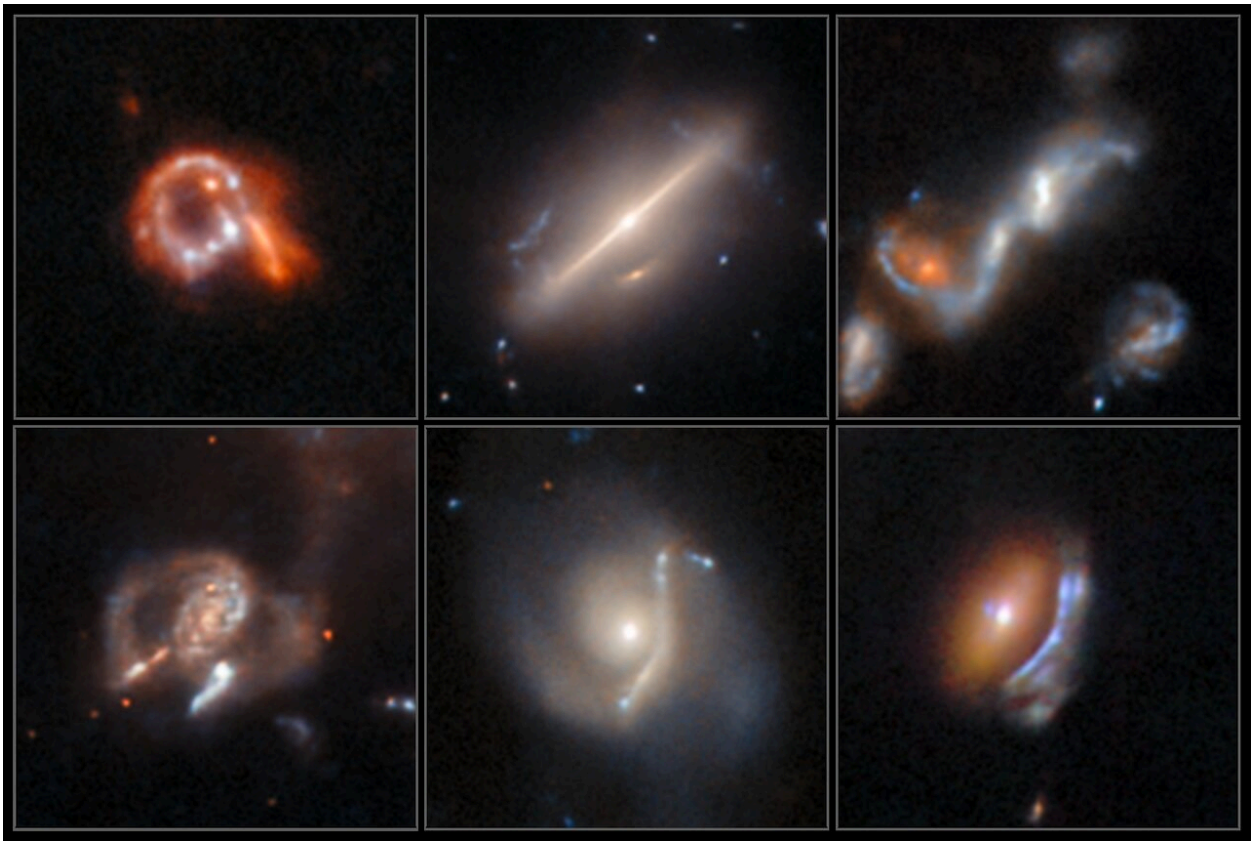
"Archival observations from the Hubble Space Telescope now stretch back 35 years, providing a treasure trove of data in which astrophysical anomalies might be found," says David O'Ryan, lead author of the research paper published in the journal Astronomy & Astrophysics.

Astrophysical anomalies are usually discovered when scientists manually search for objects that are outside the norm — or find them by chance. While trained scientists excel at spotting cosmic anomalies, there's simply too much Hubble data for experts to sort through at the necessary level of fine detail by hand.

Citizen science projects, which enlist non-scientists to collaborate on tasks such as classifying galaxies, provide another way to chip away at the mountains of data available. While citizen science groups greatly expand the amount of data that can be inspected, they're still no match for extensive archives like Hubble's, or for datasets from telescopes that survey the sky like ESA's Euclid space telescope.

Now, this new work by O'Ryan and Gómez takes the search to a whole new level. The team developed what's called a neural network, an AI tool that uses computers to process data and

Cosmic Anomalies, continued



search for patterns in a way that is inspired by the human brain. Their neural network, which they named AnomalyMatch, is trained to search for and recognise rare objects like jellyfish galaxies and gravitational arcs.

The team used AnomalyMatch to search through nearly 100 million image cutouts from the Hubble Legacy Archive, marking the first time the archive has been systematically searched for astrophysical anomalies. In just two and a half days, AnomalyMatch completed its search of the archive and returned a list of likely anomalies.

As the process of tracking down rare objects still requires an expert eye, O'Ryan and Gómez personally inspected the sources rated by their algorithm as most likely to be anomalous. Of these, more than 1300 were true anomalies, more than 800 of which had never been documented in the scientific literature.

Most of the anomalies were galaxies in the process of merging or interacting, taking on unusual shapes or trailing long tails of stars and gas. Many others were gravitational lenses,

Cosmic Anomalies, continued

in which the gravity of a foreground galaxy bends spacetime and warps the light from a distant background galaxy into a circle or arc. The team also discovered examples of several other rare objects such as galaxies with huge clumps of stars, jellyfish galaxies with gaseous 'tentacles', and planet-forming disks seen edge-on, giving them a hamburger-like or butterfly-like appearance. Perhaps most intriguing of all, there were several dozen objects that defied classification altogether.

"This is a fantastic use of AI to maximise the scientific output of the Hubble archive," says study co-author Pablo Gómez. "Finding so many anomalous objects in Hubble data, where you might expect many to have already been found, is a great result. It also shows how useful this tool will be for other large datasets."

Hubble has generated just one of many large data archives in astronomy, and more are on the horizon. New facilities that will return an enormous amount of data include Euclid, which began its survey of billions of galaxies across a third of the night sky in 2023, the NSF–DOE Vera C. Rubin Observatory, which will soon begin its 10-year Legacy Survey of Space and Time and collect more than 50 petabytes of images, and NASA's Nancy Grace Roman Space Telescope, to which ESA contributes as a Mission of Opportunity, that is scheduled to launch no later than May 2027. AI tools like AnomalyMatch can help astronomers handle the deluge of incoming data and discover new examples of rare and unusual objects — and maybe even things never seen before in the Universe.

More information

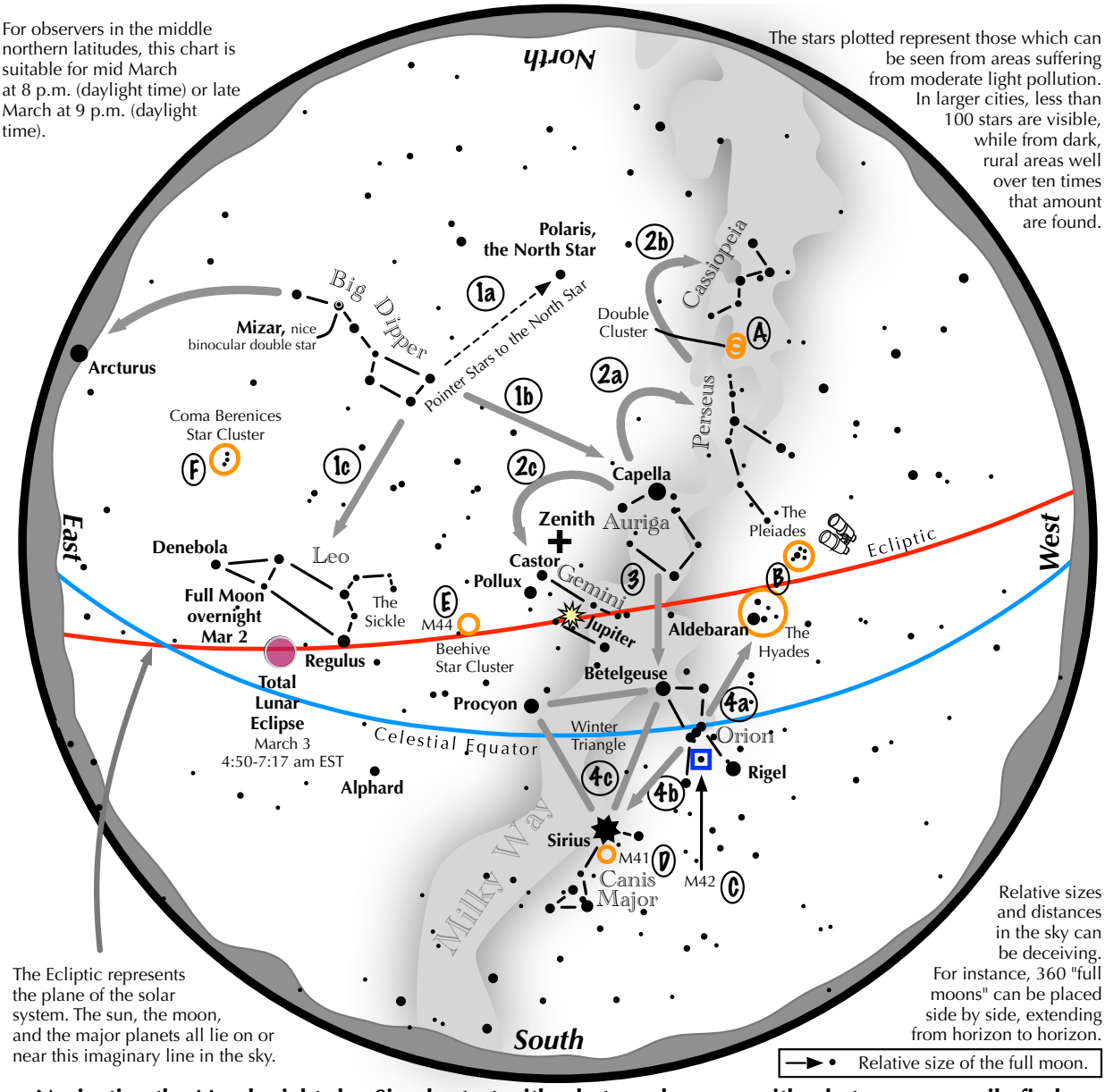
The Hubble Space Telescope is a project of international cooperation between ESA and NASA.

Image Credit: ESA/Hubble & NASA, D. O'Ryan, P. Gómez (European Space Agency), M. Zamani (ESA/Hubble)

Navigating the mid-March Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid March at 8 p.m. (daylight time) or late March at 9 p.m. (daylight time).

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 March night sky: Simply start with what you know or with what you can easily find.

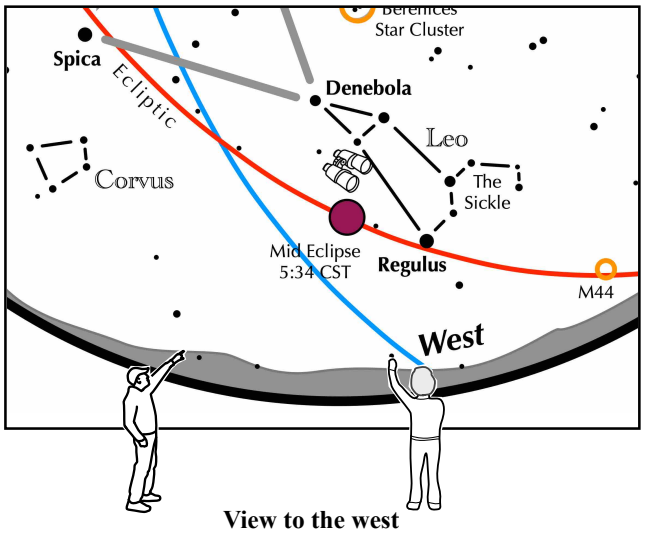
1. Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star. Its top bowl stars point west to Capella in Auriga, nearly overhead. Leo reclines below the Dipper's bowl.
2. From Capella jump northwestward along the Milky Way to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
3. Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
4. Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius. It is a member of the Winter Triangle.

Binocular Highlights

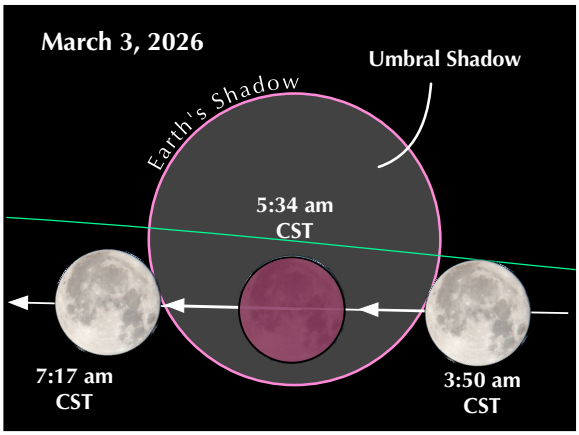
A: Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** M42 in Orion is a star forming nebula. **D:** Look south of Sirius for the star cluster M41. **E:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **F:** Look high in the east for the loose star cluster of Coma Berenices.

Astronomical League Outreach

If you can observe only one celestial event in the morning this March, see this one.



View to the west on March 3 at 5 am CST



The Moon slides through a total eclipse

Eclipse times
Partial eclipse begins: 3:50 a.m. CST
Total eclipse begins: 5:04
Mid eclipse: 5:34
Total eclipse ends: 6:03
Partial eclipse ends: 7:17

In the hours before dawn on March 3, the brilliant full moon slides into Earth's shadow.

- Even though the partial umbral eclipse begins at 3:50 a.m. CDT, darkening might not be noticed for another 5 minutes.
- When totality is reached, the full moon's brilliance is gone, allowing the stars to appear. Can you see that the moon lies east of Regulus and below Leo?
- At mid eclipse, what color is the moon? How red is it?
- During the partial phases, can you notice that the shadow's edge is not straight, but curved?

Astrophotography

Star trails above Mauna Kea Observatories, Hawaii by Mark Dahmke
Panasonic Lumix G9II, Olympus 300mm (600mm fullframe equivalent) telephoto lens on tripod, ISO 3200, 40 seconds at f/6.7. Lightroom noise reduction and sharpening.
Camera distance from summit: 21 miles

Astrophotography

Witch's Head IC2118 by Brett Boller
William Optics Redcat 51mm - ZWO AM5N - ZWO ASI2600MC Pro Duo
Friend NE Jan 11th, 12, 15th, 20th, 21st, 22nd, Feb 6th 2026
110 x 5min subs stacked for 9 hours total
Pixinsight, Photoshop for editing

Astrophotography

Messier 20 by Dave Churilla
Messier 20 (NGC 6514) also known as the Trifid Nebula. It is an H II region of Sagittarius, a star-forming region in the Milky Way's Scutum-Centaurus Arm. It is 42 light years across and 5,200 light years away from earth. This image was taken with my SeeStar S50 using 151 10 sec subs processed in SeeStar and my Ipad.

Astrophotography

Messier 51 by Dave Churilla
Messier 51 (NGC 5194 / 5195) is also known as the Whirlpool Galaxy is roughly 76,900 Light Years across and 24 million light years away. It is a larger galaxy interacting with a smaller one, likely merging. This image was taken with my SeeStar S50 processed in SeeStar. It is a stack of 314 10 sec subs.

From the Archives, February, 2016

Close Encounters of the Bovine Kind

Rick Johnson

Editor's note: for the benefit of newcomers to the club, I'm reprinting this story from the PAC 50th Anniversary History Book (available in the club library or on lulu.com or Amazon). It's one of my favorite PAC stories.

One cool summer night in the mid 60's we were using the hill top cow pasture of Earl Moser's father as our viewing site. It was by far the darkest night I can recall. I believe we were there for the Perseid Meteor Shower. Earlier in the evening a cow had gotten loose from the pen. Earl simply shooed it away and back down the hill. It was so dark I didn't see the cow but only heard it. By this time nearly everyone but Pete Schultz and I had left. I was in a reclining lawn chair wrapped in a blanket counting meteors. Pete was on the other side of the hill crest taking wide angle images of the sky hoping to catch some great Meteors.

He worked at the Miller and Paine Camera store at the time and had ordered in some fantastic Linhof cameras and lenses which he then tested by shooting the meteor shower with a medium format camera with fish eye lens.

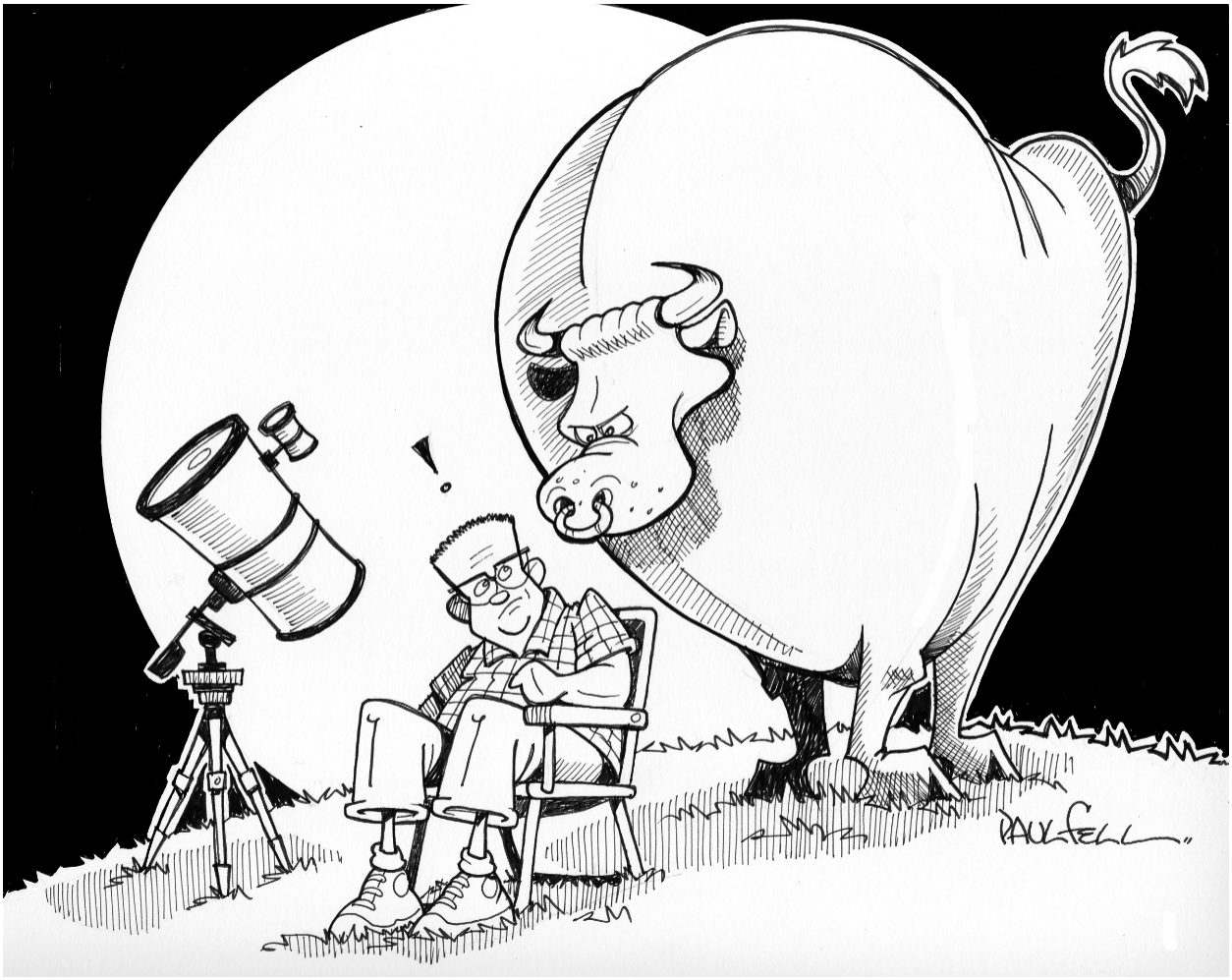
Earl went to drive back down to his house for cocoa or something like that. He tried driving out without his lights so as not to bother Pete's imaging nor my dark adaption. But the night was so dark he managed to drive over his camera and tripod. The tripod was toast but the tires missed the camera.

While Earl was gone, with Pete concentrating on his guiding and me counting meteors I suddenly heard Pete breathing hard right behind my chair. He didn't say anything. Just breathed heavily. I finally asked what he was doing. Pete's voice came, not from right behind me but from over the hill that he was still guiding an exposure. Now I don't believe in ghosts, especially those that breathe so I turned away from my meteor counting to see who was behind me. No one. At least I didn't see anyone but the breathing came from only a foot or so behind the chair. I jumped up to see what the heck was going on. My face went right into the snotty nose of a very large animal of the bovine clan. My glasses were a mess but I somehow recovered and while I only saw the barest outline of the animal I decided if Earl could shoo a cow without a problem so could I.

I tried to imitate Earl's earlier action but to no avail. It just stood there breathing deeply. I started to try again when from far down the hill I heard Earl's panicked scream "NO! NO!" Seems he was walking back rather than risk running over something again. How he knew what was happening I don't know but his urgency stopped me instantly. He came running up at a sprinter's speed. Seems he knew this bovine

Archives, continued

was a very nasty bull and it would likely shoo me into the hospital, or worse, if I continued in my Quixotic cause. Earl quickly grabbed its nose ring and led it back to the pen from which it had escaped. After I restarted my heart I also had to restart my meteor count from the beginning. Pete continued his astrophotography without missing a beat. My heart missed many however.



Note: Mark Dahmke felt that this story needed an accompanying illustration, so he asked cartoonist Paul Fell to capture the moment of Rick's "close encounter."

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.

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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.