

The Prairie Astronomer

May, 2026 Volume 67, Issue #5



IN THIS ISSUE: HUBBLE SURVEY SETS UP ROMAN'S FUTURE LOOK
NEAR MILKY WAY'S CENTER
PLUTO-LIKE WORLD'S THIN ATMOSPHERE



*The Prairie
Astronomy
Club*

Night Sky Network



THE NEWSLETTER OF THE PRAIRIE ASTRONOMY CLUB



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

Next meeting: Tuesday May 26th 7:30pm at Hyde Observatory

NEXT MEETING

Our speaker will be Sue Hsu, a representative of Dwarflab. She will be giving us a presentation on Dwarflab's latest equipment and software.



She recently returned from a trip to NEAF and will be tuning in from China.

Sue Hsu will provide an overview of the company's smart telescopes, including their features, operation, and design. The session will cover topics such as automatic star tracking, usability, and astrophotography capabilities, along with a general explanation of how the telescopes work and what differentiates the various models.

Cover: Comet R3 (PANSTARRS) by Leona Barratt

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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.

2026 STAR PARTY DATES

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

Underlined dates are closest to the New Moon.

CALENDAR



May PAC Meeting
 Tuesday, May 26th, 7:30pm, Hyde Observatory
 Program: DWARFLab presentation

June PAC Meeting
 Tuesday, June 30th, 6:00pm, Hyde Observatory
 Nearest Star Party

Nebraska Star Party
 July 12-17, Merritt Reservoir, Valentine, NE

July PAC Meeting
 Tuesday, July 28th, 7:30pm, Hyde Observatory
 NSP Review

August PAC Meeting
 Tuesday, August 25th, Hyde Observatory

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

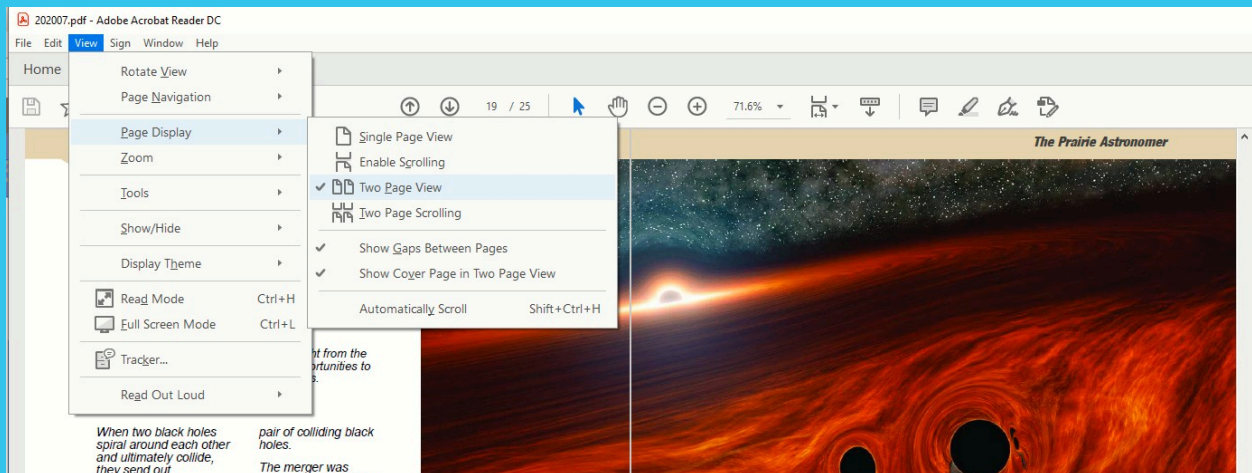
CLUB OFFICERS

President	Jason O'Flaherty jflaher@gmail.com
Vice President	Brett Boller proboller86@yahoo.com
2nd VP (Program Chair)	Open
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

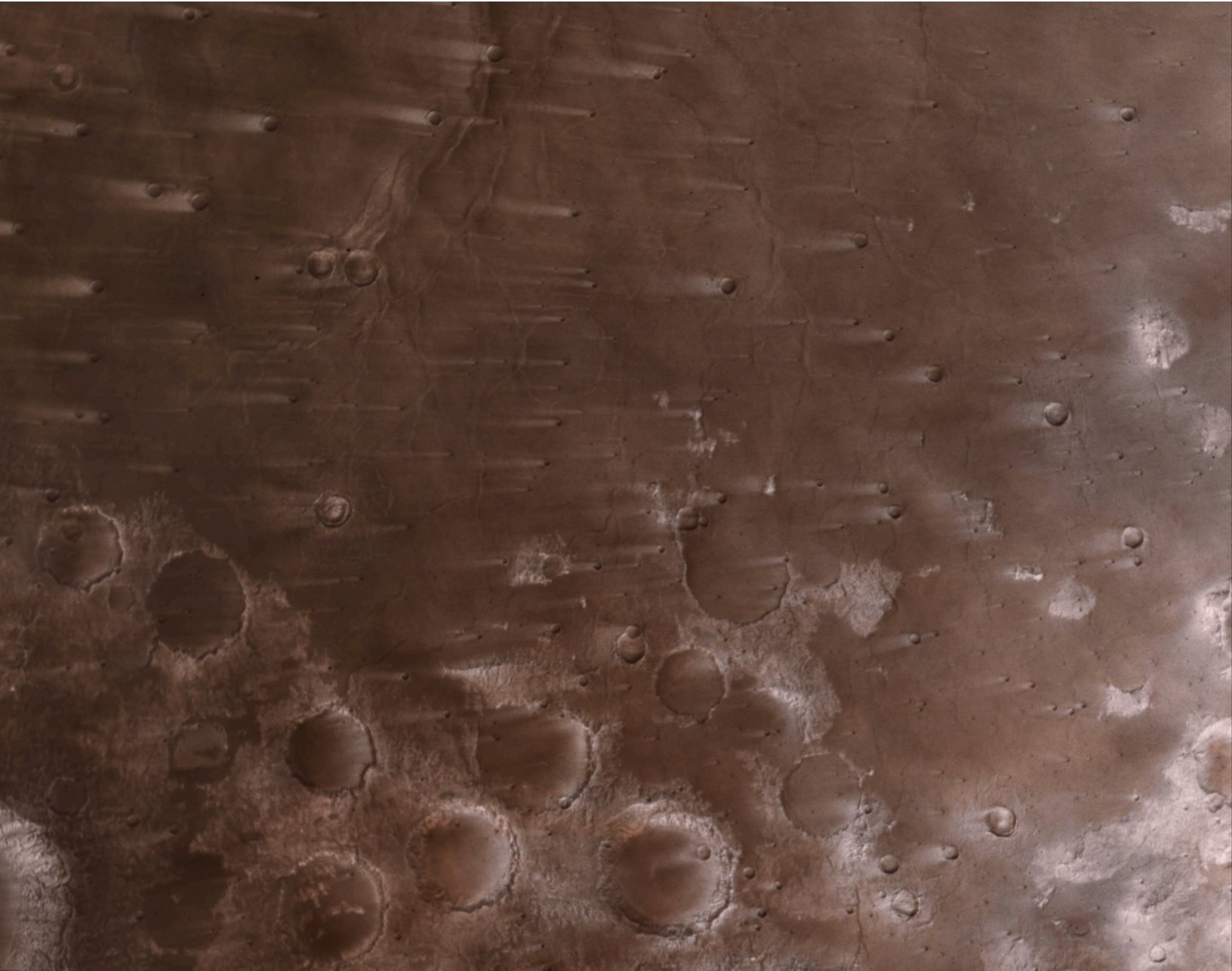
<https://www.prairieastronomyclub.org/pay-dues-online/>

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

NASA's Psyche Mission Spies Mars' Wind-Blown Craters During Close Approach



This view of the Martian surface, captured by NASA's Psyche spacecraft on May 15, 2026, shows streaks that have formed due to wind blowing over impact craters in the Syrtis Major region. The image scale is nearly 1,200 feet (360 meters) per pixel. The wind streaks extend to about 30 miles (50 kilometers) long, and the large craters near center-bottom of the scene average around 30 miles in diameter. The images have been processed into a natural-color view (approximating what the human eye would see) using red, green, and blue data from imager filters. Credit NASA/JPL-Caltech/ASU

Meeting Minutes

Jim White

Jason O’Flaherty, PAC President, started the meeting at 7:34 pm. Tonight’s meeting is being held in person at Hyde Observatory and online via Zoom. Jason announced that we have two new members this month, Kevin Roark and Braden Langemeier. Jason asked if we had any visitors at tonight’s meeting and there were two, Trevor and Mason.

Jim Kvasnicka, PAC Observing Chair, could not be at tonight’s meeting so Jason presented the monthly observing report for Jim. This month’s star parties are on May 8th and May 15th and will be held at the Clatonia Recreation Area, approximately 1 ½ miles north of Clatonia, the entrance is on the west side of the road. Jim’s complete observing report can be found in the newsletter.

Jason turned the meeting over to John Reinert, PAC Treasurer, for his

monthly report at 7:40 pm. John’s first order of business was to discuss club membership and annual dues.

Historically the club sends out email dues reminders around the month that you originally joined the PAC. With the adoption of the new membership alignment which moves all membership dues to the same month for all members, John now has a table that shows members what they owe to align their dues for the 2026 calendar year (Nov. 1st 2026) and what they would owe to get their dues up to date for the 2026 and 2027 calendar years (Nov. 1st 2027). All that a member needs to do is find their name in the table and go to the two columns on the right side and it will show the amount owed for 2026 (if this column is empty or has a \$0.00 amount) that member is up to date for 2026 and the amount in the 2027 column shows what a member owes if

they would like to get their dues paid up until Nov. 1st 2027. The amount in either column may be pro-rated dependent on when you last paid your dues to get you aligned to the Nov. 1st date. Kale is going to be the treasurer in waiting. John is trying to make Kale’s upcoming position easier that it has been for him. The question was asked about “where this table was located?” and John responded that it is currently in an Excel spreadsheet that can be attached to an email. John said that if anyone has problems opening the file or has any questions to give him a call and he’ll be happy to answer your questions. The club’s CDs come due at the end of May so if it looks like we need money for any upcoming large expenses we would need to know now in case we need to hold anything back. Our last major expenses were for a concrete slab at BOO

Meeting Minutes, continued

(Branched Oak Observatory) and a storage shed that also is located at BOO. A question was asked about the status of the audit and John said that he has all of the information with all transactions in an Excel spreadsheet and some new software that he obtained last year but things are a little disjointed so he needs to take a few hours to sit down and get everything ironed out. The transactions contained in the spreadsheet also contain all the small transactions from the online platforms that charge a small transaction fee, which is in the 3-5 percent range, for handling the online dues payments. At this time the club is absorbing those fees instead of passing that cost on to the members and at this time there really isn't a need to pass that on. John also mentioned that if members have a chance,

it would be beneficial to logon to your Night Sky Network account and make sure that your personal information is up to date. John said that if you need help with updating your information to let him know and he can help you with this. The information is needed for the Astronomical League which John needs to keep updated for observing awards etc. There was a suggestion made that when emailing the table for membership dues to attach the table as a PDF file and also an image file since many users may not be able to open an Excel file.

Account balances for the month;

Checking	\$4,999.98
CD1	\$29,011.97
CD2	\$5,626.71
BMO Total	\$39,638.66
PayPal	\$424.55
Grand Total	\$40,063.21

John turned the meeting back over to Jason at 7:47 pm. Jason shared an

updated slide with the new membership dues amounts that have in some cases changed slightly to help with pro-rating dues amounts to the November 1st yearly renewal date. Jason mentioned that we do have a mentorship program in case any current or new members are interested in getting paired up with someone to help out with astronomy related questions, processes or procedures. Bob Kacvinsky is heading up the mentorship program so if you have a need please see Jason after the meeting and he will get your information passed on to Bob. The next club meeting is scheduled for May 26th at 7:30 pm at Hyde Observatory. The program for the May meeting is yet to be determined. There had been talk that the May meeting might be another "How to Use Your Telescope" program since the weather should now be a little more

Meeting Minutes, continued

tolerable than it is in January or February. Jason announced that our Second Vice President, Amos Sobotka, resigned today for personal reasons and wasn't able to continue with his Second Vice President duties. Jason is going to schedule a board meeting, probably a call or Zoom meeting, to discuss this position and see what our path should be going forward. Not that this position was responsible for Amos's resignation but this position does seem to have a fair amount of turnover. Amos is doing fine, he didn't go into too much detail, he's just not sure how much he is going to be participating in the club at the moment.

Upcoming astronomical events are May 5th and 6th is the Aquariid Meteor Shower, May 31st is the Blue Moon and sometime in May the Psyche Asteroid Mission is going to be doing a Mars flyby to get a gravity assist as it heads for the Psyche Asteroid orbit sometime in 2029.

In club outreach, Don Hain (PAC Outreach Coordinator) and Jack Northrup from Rolling Bluffs Planetarium, participated in Astronomy Night at Morrill Hall. It sounded as though they had a good turnout and had a lot of people stop to check things out.

Other volunteer opportunities, Hyde

Observatory is always looking for help, if interested go to the Hyde Observatory website and checkout the volunteer section. There is an event coming up at the Children's Museum but it sounds like they have all of the volunteers that they need.

Tonight's meeting ended at 7:53.

Tonight's Program will be "The Print and Digital Tools that PAC Members use to guide us through our journey in Astronomy" and will be presented by PAC member David Knisely.

If there is time after the program, we may watch an Astrobiscuit Video.



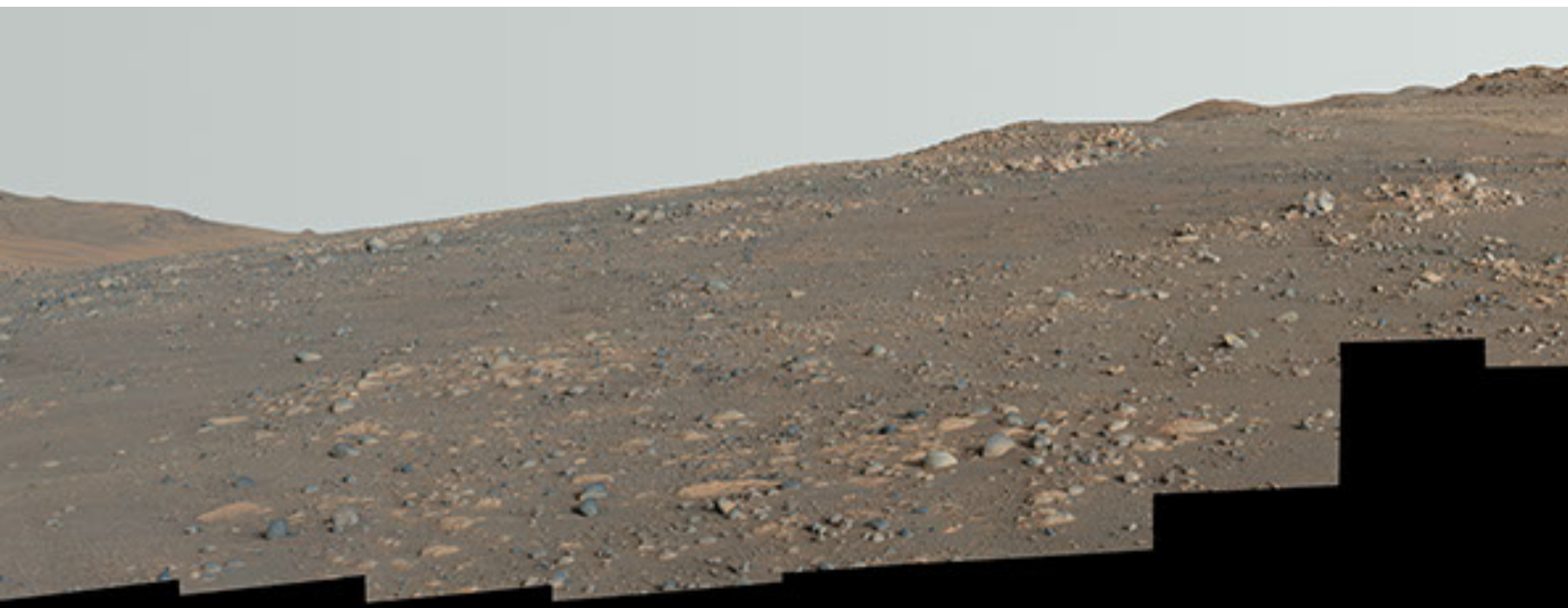
NASA's Perseverance Captures Panorama at 'Arbot'

NASA's Perseverance Mars rover used its Mastcam-Z camera to capture this panorama of an area nicknamed "Arbot" on April 5, 2026, the 1,882nd Martian day, or sol, of the mission, during the rover's deepest push west beyond Jezero Crater. Made of 46 images, the panorama offers one of the richest geological vistas of the mission, revealing a windswept landscape of diverse rock textures. This is an enhanced-color version, which had its color bands processed to improve visual contrast and accentuate color differences.



NASA's Jet Propulsion Laboratory, which is managed for the agency by Caltech in Pasadena, California, built and manages operations of the Perseverance rover. Arizona State University leads the operations of the Mastcam-Z instrument, working in collaboration with Malin Space Science Systems in San Diego, on the design, fabrication, testing, and operation of the cameras, and in collaboration with the Niels Bohr Institute of the University of Copenhagen on the design, fabrication, and testing of the calibration targets.

Credit NASA/JPL-Caltech/ASU/MSSS



ARP 92

The Mantrap Skies Image Catalog

Arp 92 falls under Arp's class: Spiral galaxies with companions on arms: Elliptical galaxy companions. If by "companion" Arp includes unrelated line of sight galaxies then this might be true. In this case red shift data, possibly not known when Arp prepared his catalog, shows the main galaxy, NGC 7603 has a light travel time distance of 385 million light years while the "companion", NGC 7603B is at a distance of 728 million light years, nearly twice as far away. So it isn't the cause of the distortion and tidal plume coming from NGC 7603. Or is it, NED lists a couple papers that do consider it a true companion even acknowledging the red shift difference. Arp comments: "Very faint connection shows better in red." Indicating he sees this plume as a true linkage. In later years Arp denied red shift necessarily indicated distance though at the time of the catalog he hadn't come to this belief. It is classed as SA(rs)b: pec and is a Seyfert galaxy. So is it a companion or not? I'll say no until better evidence is provided. NGC 7603 was discovered by Albert Marth on October 23, 1864.



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 92, continued

With time the "guilty" galaxy might be some distance away. There are two candidates I find in the image. NGC 7589 to the west (right) is the odd spiral with faint narrow arms. It has a redshift almost identical to that of NGC 7603 that puts it at 389 million light years. It is classed as SAB(rs)a: and is a Seyfert 1 galaxy. So it is the most likely candidate for the true "companion". Though in the upper left corner is another possible mugger. It is odd rather "sloshed" streak of a galaxy known as ASK 025830.0/SDSS J231929.76+002212.0 at a redshift that puts it a bit further away at 407 million light years. Sometimes an interaction will move the core of a galaxy from the center and toward the galaxy it interacted with. Could that explain this galaxy? All this is speculation on my part. Too bad we can't rewind time and see what this system looked like a

billion years ago. To me, a more likely cause is a merger. The plumes caused by a merger in the past.

Adding to the confusion is that the galaxy Arp considered the companion, NGC 7603B is also a Seyfert 1 galaxy. Probably just a coincidence. Some galaxies just have an active core. That could be the case here.

There happened to be three asteroids in this image. The one below Arp 92 is (123944) 2001 EU20 at an estimated 18.5 magnitude. The one to the northwest corner is (218053) 2002 DT1 at an estimated 18.4 magnitude. Yet it is obviously dimmer in my image. Though this may be an illusion due to its more rapid motion. The third is in the lower right corner and is (66172) 1998 VX45 at an estimated magnitude of 18.0.

West of Arp 92 beyond and a bit below NGC 7589 is an odd, apparently double, very blue, galaxy. As I've mentioned many times before these are often excluded from the SDSS catalog as listed in NED. This is another example. It was picked up by the automatic plate survey so is listed under it as APMUKS(BJ) B231533.01-000313.1 It also made LEDA as LEDA 135885 but not Sloan. But NED makes the odd classification as Sb or plate flaw! Then to make this more ridiculous they calculate a redshift distance of 377 million light years for this possible plate flaw. It is yet another strange galaxy that is part of the group with Arp 92. So is it a double galaxy or one with a plume or what is it? Is it involved with Arp 92? Note that in my image the upper half is a bit bluer than the lower half. Also, NED classified it as either Sb or a plate defect. Apparently, some

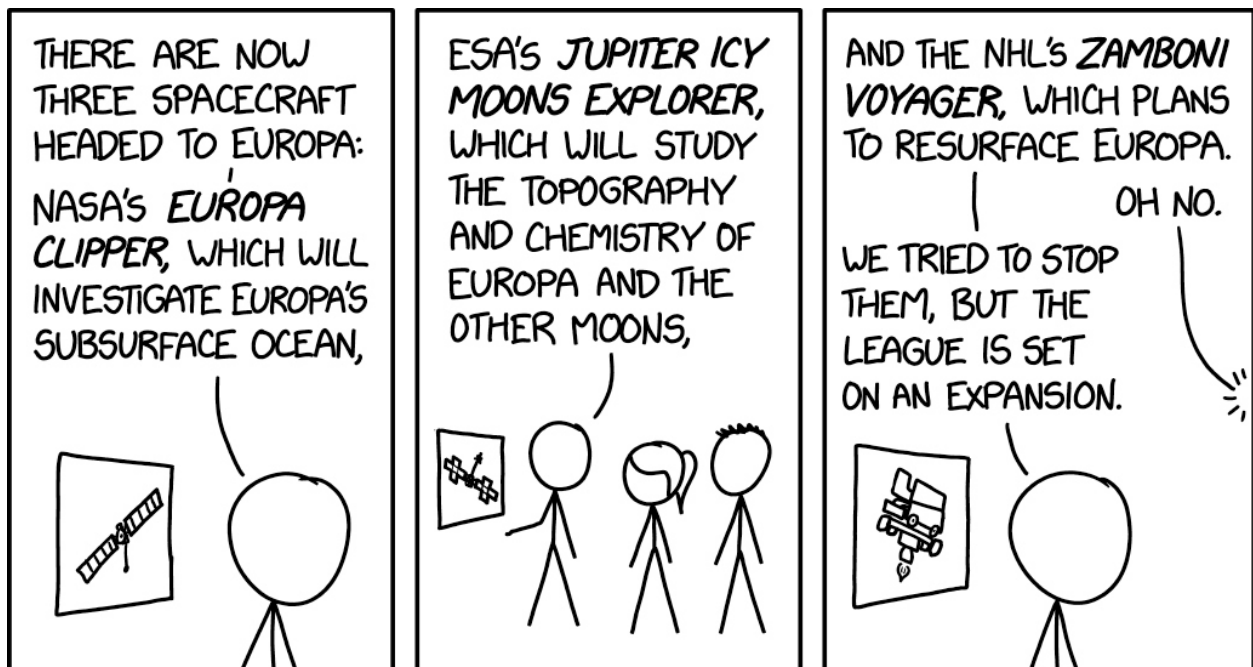
ARP 92, continued

things don't change when new information is available. You can't get a distance estimate from a plate defect by any means I'm aware of. Things just get curiouser and curiouser as Alice would say.

There are quite a few galaxies right at the limit of this image. They are

about 22nd magnitude and about 5.1 billion light-years away. At least a few are of this same distance. I've prepared an annotated image with galaxy and quasar distances labeled in billions of light years. As usual, the label is just right of the object unless this isn't possible without hiding

something. You may need to enlarge the image to see some of these little faint guys. My limiting magnitude here was about 22.4 in green light. NED lists some 5000 galaxies in this image with a redshift value. The annotated image only shows a few that interested me.



Pluto-Like World's Thin Atmosphere Poses a Mystery for Astronomers

Alan Boyle,, [Universe Today](#)

Scientists are puzzling over another oddball on the edge of the solar system: This time, it's an icy object less than a quarter of Pluto's size with a thin atmosphere – a layer of gas that's not typically found around objects so small.

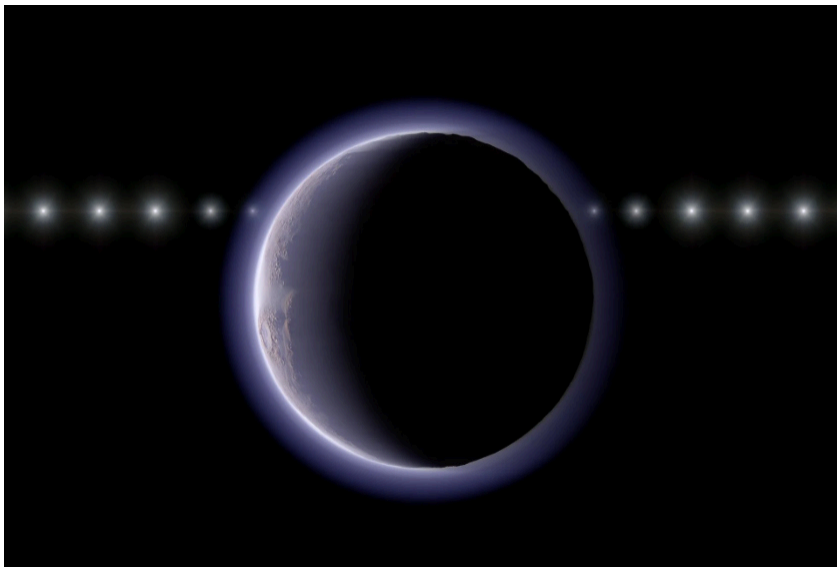
A Japanese team of researchers — including an amateur astronomer — laid out the curious case of 2002 XV93 this week in the journal

Nature Astronomy. 2002 XV93 traces an elliptical path beyond the orbit of Neptune in the icy Kuiper Belt, never coming closer to the sun than 3 billion miles. Like Pluto, it's locked in a resonance with Neptune that keeps its orbit relatively stable.

The Japanese astronomers, led by Ko Arimatsu of the National Astronomical Observatory of Japan,

tracked the mini-world with several telescopes as it passed in front of a background star in January 2024. They found that the light from the star gradually dimmed before it disappeared behind 2002 XV93, as if the light was filtered through a thin layer of gas.

That finding posed a puzzle: Based on estimates of its size, 2002 XV93 shouldn't have enough gravitational pull to hold onto an atmosphere for longer than, say, 1,000 years. Follow-up observations from NASA's James Webb Space Telescope produced no evidence that there were frozen gases on the object's surface. That led Arimatsu and his colleagues to suggest that gases are being spewed out from ice volcanoes, or that a cometary impact released a burst of gas



An artist's conception shows how the light from a distant star would be dimmed and then blocked as a trans-Neptunian object with a thin atmosphere passes in front of it.

(Credit: NAOJ)

Mystery, continued

that will eventually dissipate.

The spectral signature of the filtered light would be consistent with an atmosphere containing nitrogen, methane or carbon monoxide — chemicals that are found in Pluto's somewhat less thin atmosphere. Further observations will be required to verify the atmosphere's composition.

"This is an amazing development, but it sorely needs independent verification. The implications are profound if verified," Alan Stern, a planetary scientist at Southwest Research Institute who leads NASA's New Horizons mission to Pluto and the Kuiper Belt, told The Associated Press.

If 2002 XV93 can hold onto a stable atmosphere, perhaps fed by the emissions of ice volcanoes, other underappreciated celestial bodies might be able to do so as well. "This discovery suggests that the traditional idea that global dense atmospheres form only around larger planets must be revised," the researchers write.

This week's findings have come amid hints that Pluto — an oddball world that was reclassified as a dwarf planet in 2006 — may get a second look. "I am very much in the camp of 'make Pluto a planet again,' " NASA Administrator Jared Isaacman said during a Senate committee hearing last week. "And I would say we are doing some papers right now

on, I think, a position that we would love to escalate through the scientific community to revisit this discussion."

The senator who asked Isaacman about Pluto was Kansas Republican Jerry Moran — who represents the state where Clyde Tombaugh, Pluto's discoverer, grew up. The NASA chief alluded to that fact when he said he wanted to "ensure that Clyde Tombaugh gets the credit he received once and rightfully deserves to receive again." So, Isaacman may have said what he said merely as a political gesture.

Focus on Constellations: Boötes

Jim Kvasnicka

Boötes, The Bear Watcher or Herdsman is the 13th largest constellation in the sky. Boötes is far off of the Milky Way so it lacks open clusters and diffuse nebulae. Like most constellations off of the Milky Way it is well populated with faint galaxies. Boötes does contain many fine double stars, seven from the Double Star Program. Boötes is easy to spot with its distinctive shape and the bright star Arcturus, the third brightest star in the sky. Boötes is best seen in the late Spring.

Showpiece Objects

Galaxies: NGC 5248, NGC 5676, NGC 5689
Multiple Stars: Kappa Bootis, Iota Bootis, Pi Bootis, Epsilon Bootis, Xi Bootis, Delta Bootis, Mu Bootis

Mythology

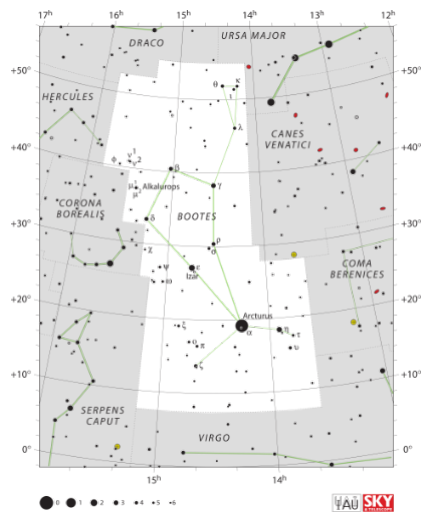
Boötes may be one of the most ancient constellations in the sky.

It has been recognized by numerous cultures in different forms. The Egyptians believes the north circumpolar stars were evil. The most evil of all constellations was the Great Bear. Boötes, they believed, was placed in the sky to guard the Great Bear and see she did no harm. The Greeks knew Boötes as the Bear Watcher or Bear Guard because he seemed to chase Ursa Major and Ursa Minor across the sky. Boötes is also called the Herdsman because he seems to hold the leashes of the Hunting Dogs, the constellation Canes Venatici. In one Greek legend Arcas was the son of Zeus and Callisto. Hera, the wife of Zeus was angry and turned Callisto into a bear. One day in the woods Arcas came upon his mother Callisto who was now a bear. Not recognizing her he raised his spear and was about to kill his mother when

Zeus stepped in and intervened. Zeus had them both placed in the sky forever. Callisto as Ursa Major and Arcas as Ursa Minor.

Number of Objects Magnitude 12.0 and Brighter

Galaxies: 13
Globular Clusters: 1
Open Clusters: 0
Planetary Nebulae: 0
Dark Nebulae: 0
Bright Nebulae: 0
SNREM: 0



IAU and Sky & Telescope magazine (Roger Sinnott & Rick Fienberg), CC BY 3.0 <<https://creativecommons.org/licenses/by/3.0/>>, via Wikimedia Commons

June Observing

Jim Kvasnicka

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

Planets

Mercury: Good position for viewing in the evening.

Venus: Evening planet, sets nearly three hours after the Sun.

Mars: Morning planet, difficult to see.

Jupiter: In the evening twilight.

Saturn: Morning planet, difficult to see. Better at months end.

Neptune: Not visible.

Uranus: Not visible.

Messier List

M58: Galaxy in Virgo.

M59/M60: Galaxies in Virgo that fit in the same FOV.

M84/M86: Galaxies in Virgo that fit in the same FOV.

M87: Round galaxy in Virgo.

M88: Oval shaped galaxy in Coma Berenices.

M89/M90: Galaxies in Virgo that fit in the same FOV.

M91/M98: Galaxies in Coma Berenices.

M99/M100: Galaxies in Coma Berenices.

Last Month: M49, M51, M61, M63, M64, M85, M94, M101, M102, M104

Next Month: M3, M4, M5, M53, M68, M80, M83

NGC and other Deep Sky Objects

NGC 5172: Elongated galaxy in Coma Berenices.

NGC 5248: Oval shaped galaxy in Boötes.

NGC 5676: Oval shaped galaxy in Boötes.

NGC 5689: Elongated galaxy in Boötes.

NGC 5927: Class VIII globular cluster in Lupus.

NGC 5986: Class VII globular cluster in Lupus.



Double Star Program List

Sigma Corona Borealis: Yellow stars.

16/17 Draconis: Equal pair of white stars.

Mu Draconis: Close pair of white stars.

Kappa Herculis: Pair of yellow stars.

Alpha Herculis: Orange primary with a greenish colored secondary.

Delta Herculis: White primary with a blue-purple secondary.

Rho Herculis: Two white stars.

95 Herculis: Light yellow pair.

Alpha Librae: Wide pair of yellow-white stars.

Challenge Object

NGC 5673 and IC 1029: Two galaxies in Boötes that fit in the same FOV.

Club Outreach

Don Hain

dhain00@gmail.com

402-440-5318

I have had wonderful experiences the last couple weekends at Hyde Observatory. If you have not had a chance to look at Jupiter and its four moons this year, I will tell you, it is a lot of fun! Jupiter is one of the first things I got familiar with when I got a decent pair of binoculars by looking for it and then marvelling at the tiny dots beside it.

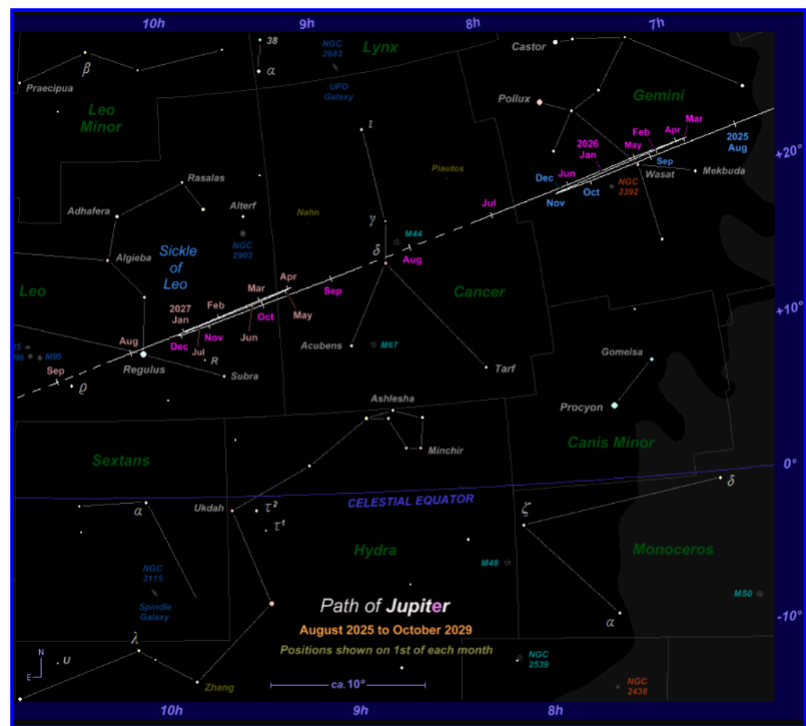
With Jupiter being so easy to spot in the night sky it is a great object to discuss with folks. I also like to consider for my own benefit, as well as because it is fun to talk to others about it, the relation between what is happening on earth and what is happening in the skies above us. That also has a strong tie in to what humans think our relationship to the outside world is ... which also tends to encourage us to look back at ourselves and our relationships with each

other, and with creatures we share the planet with.

Just this last week I found the site called [Naked Eye Planets](https://www.nakedeyeplanets.com/). It is a site apparently maintained by Martin J. Powell. A portion of one of the diagrams he has put together is included here. The diagram here concentrates on a smaller timeframe. I plan to take a look at his descriptions of “The Position of Jupiter in the Night Sky: 2025 to 2029”



at https://www.nakedeyeplanets.com/jupiter.htm#google_vignette in more depth this month. I had not seen such a well laid out diagram of retrograde motion combined with a visualization of a planet making its way through the signs of the zodiac. If you get a chance to visit Martin Powell’s site, I think you will enjoy it.



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: I am no longer able to make it to this event, but plan to connect with the museum about events PAC might help with in the future. 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.



Hubble Survey Sets Up Roman's Future Look Near Milky Way's Center

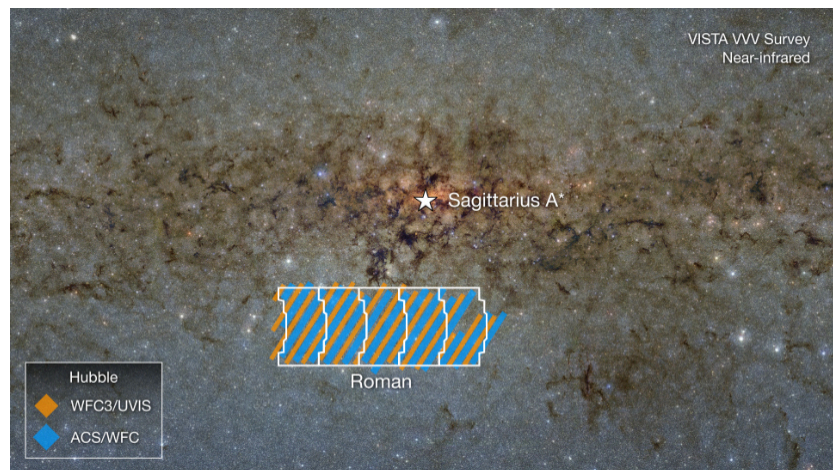
The Milky Way's galactic bulge, the bulbous region that surrounds the galactic center, contains a dense collection of stars, planets, and other free-floating objects. This region has been studied for decades with numerous ground-based and space-based telescopes, including NASA's Hubble and James Webb space telescopes. Soon, NASA's Nancy Grace Roman Space Telescope will be the first to make studying the galactic bulge a part of its core science objectives, building on the data collected from all observatories before it. Roman's field of view will cover more area at a far faster cadence than previous space telescopes, allowing it to survey millions of stars and find thousands of new exoplanets.

To support Roman in characterizing numerous stars and planets,

astronomers sought to use Hubble to observe many of the same areas of the galactic bulge that Roman will observe in its core Galactic Bulge Time-Domain Survey. By comparing Hubble data taken months or years earlier to new Roman data, astronomers will be better able to interpret Roman's forthcoming observations. The Roman telescope team is targeting as soon as early

September 2026 for launch.

"A top priority of our Hubble survey is to cover as much sky area as possible," said Sean Terry, project lead and assistant research scientist from the University of Maryland, College Park and NASA's Goddard Space Flight Center in Greenbelt.



This VISTA VVV Survey image shows the galactic bulge near Sagittarius A, the supermassive black hole at the Milky Way's center. A region planned for observation by NASA's Nancy Grace Roman Space Telescope is outlined. This area has been observed by NASA's Hubble Space Telescope. Image: NASA, Alyssa Pagan (STScI); Acknowledgment: VISTA, Dante Minniti (UNAB), Ignacio Toledo (ALMA), Martin Kornmesser (ESO)*

Roman, continued

A paper about the team's work published May 11, 2026 in the *Astrophysical Journal*.

'Small' lenses, large discoveries

Many planetary systems within the Milky Way evolve much like our solar system did, beginning with the collapse of a cosmic gas cloud, the growth of a star, and the formation of surrounding planets. However, in some systems, different events can result in a planet being ejected from the system where it formed. Hundreds of these "rogue planets" will be detected by Roman's Galactic Bulge Time-Domain Survey, in addition to previously unseen, isolated neutron stars, and even black holes with masses similar to our Sun.

This survey consists of six 72-day observing seasons during which Roman will take a snapshot every 12 minutes of a large

portion of the bulge (approximately 1.7 square degrees of the region, or the area of 8.5 full moons). While it will detect a variety of targets, the survey is optimized to look for a specific type of event known as microlensing.

Microlensing events, a type of gravitational lensing event, occur when the light from a more distant object is warped by the mass of a closer object along the line of sight. These events occur on a much smaller scale than larger lensing events (on the order of individual stars instead of galaxies or galaxy clusters) and allow us to search for exoplanets between us and the densely packed stars within the galactic bulge.

"The great thing about microlensing is that we'll be able to do a complete census of objects as small as Mars that are moving between us and these fields in the bulge,

no matter what it is," said co-author Jay Anderson of the Space Telescope Science Institute in Baltimore.

For Roman, from Hubble

When a telescope observes a lensing object, such as a bright star, aligning with a star in the galactic bulge, it can be difficult for astronomers to decipher which of the two the starlight comes from. Therefore, timing is a key consideration. If astronomers can identify light sources separately before a microlensing event occurs, it becomes far easier to disentangle them.

To collect this pre-Roman data, astronomers used the Hubble Space Telescope to conduct a large-scale survey, which began in the spring of 2025, covering much of the same area that Roman will observe in the Galactic Bulge Time-Domain Survey. The size of this program is even

Roman, continued

larger than two previous surveys (each around 0.5 square degrees) that led to Hubble's largest mosaic, that of our neighboring Andromeda galaxy, which took over 10 years to assemble.

"The main goal of these observations is to be able to identify objects that participate in lensing events during the Roman survey, catching them before they undergo the lensing event," said Anderson. "When, in a couple of years, an event happens during Roman's long stare at the field, we can go back and say, 'This was a red star, this was a blue star, and the event happened when the red star went in front of the blue star.'"

The data from Hubble also will help shape the analysis of the lensing objects themselves. The microlensing event itself measures only a ratio of the masses of a host star and its planet. With data from stars before or after their microlensing

events, however, scientists would be able to measure the stars' individual masses, echoing the way Hubble previously determined the mass of a star and its planet in the Milky Way. This method turns a more opaque measurement of the relationship between a star and its planet into one far more certain.

"Instead of estimating a mass ratio of a planet that's orbiting a star, we can say that we're confident it's a Saturn-mass planet orbiting a star that's 0.8 solar masses, for example," Terry said. "So with the help of precursor imaging from Hubble you can hope to get direct measurements of the masses as opposed to indirect mass ratios." Next leap in magnitude

While exoplanet discovery is a large part of Roman's Galactic Bulge Time-Domain Survey, observing such a large area with Hubble

also can help identify areas of extinction, dense pockets of dust and gas that absorb or scatter light, allowing us to create maps detailing where we can see stars and where we can't.

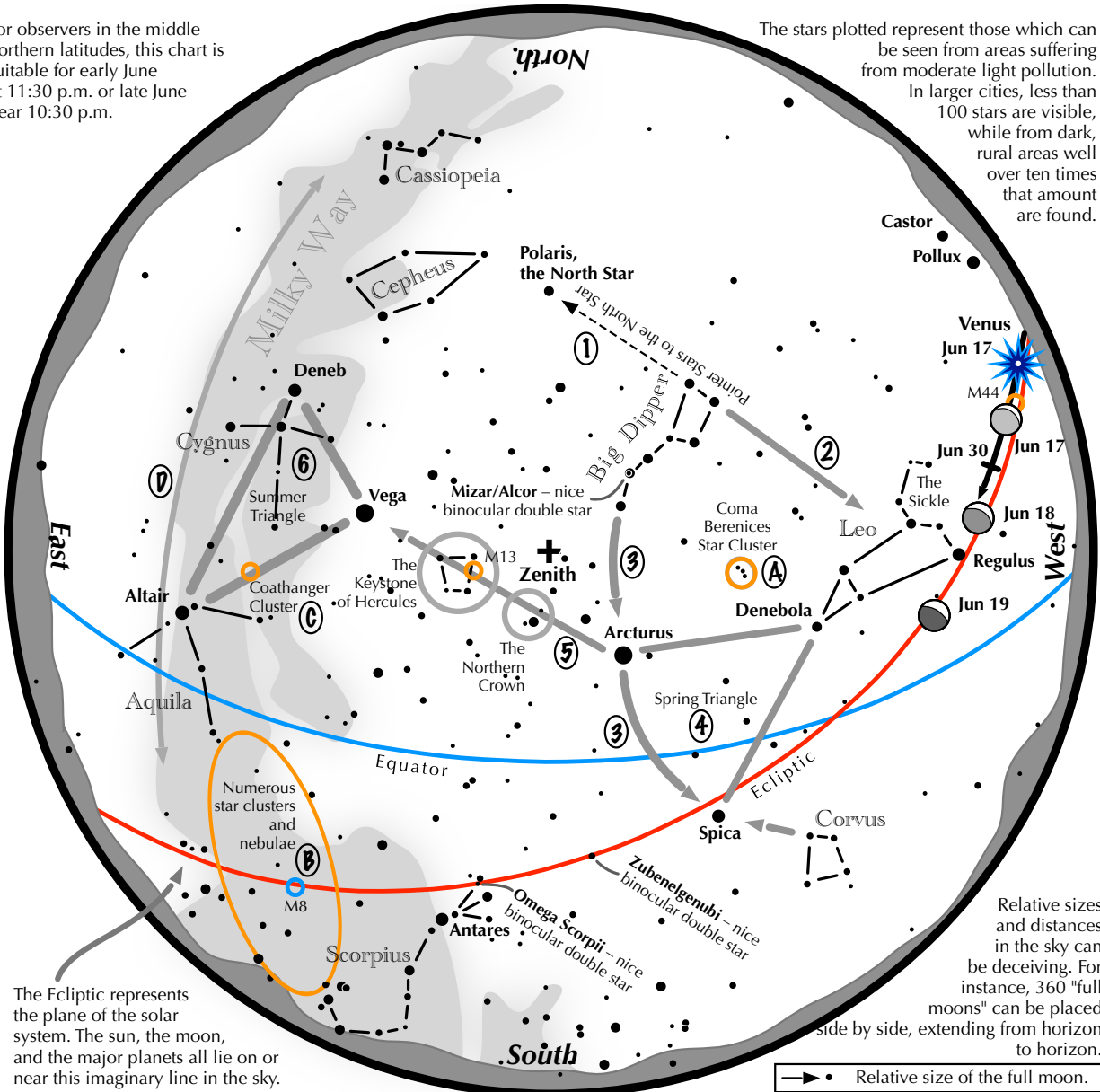
Hubble's survey also has provided the crucial beginning of a brand-new catalog of stars, which will help astronomers characterize the host stars of exoplanets discovered by Roman. The research team predicts Roman will add to Hubble's star catalog by an order of magnitude.

"This Hubble survey will build a catalog of 20 to 30 million point sources," said Terry. "But, by the end of the Galactic Bulge Time-Domain Survey, Roman may measure about 200 to 300 million, and it will produce, essentially, some of the deepest images ever taken of any part of the sky."

Navigating the June Night Sky

For observers in the middle northern latitudes, this chart is suitable for early June at 11:30 p.m. or late June near 10:30 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.

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

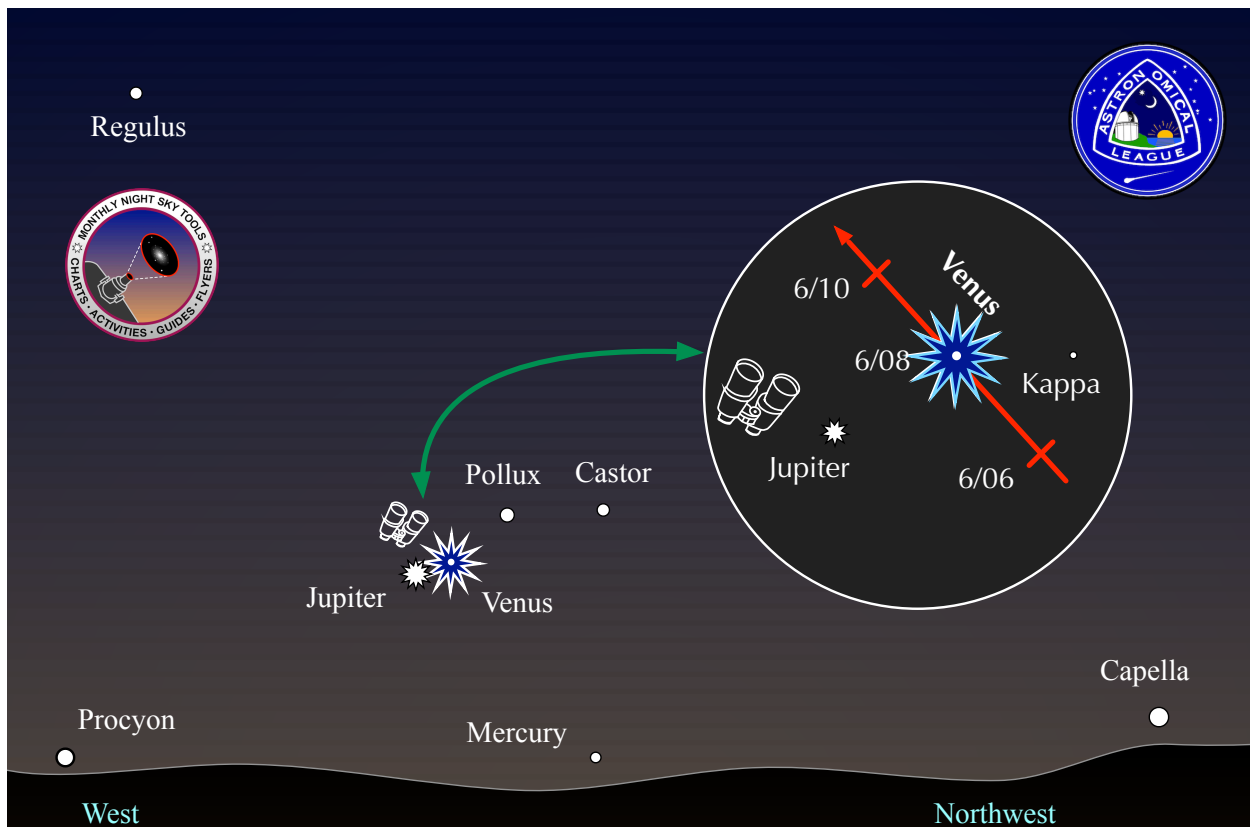
- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Draw another line in the opposite direction. It strikes the constellation Leo high in the west.
- 3 Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the June evening sky, then Spica.
- 4 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 5 To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 6 High in the east are the three bright stars of the Summer Triangle: Vega, Altair, and Deneb.

Binocular Highlights

- A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
- B: Between the bright stars of Antares and Altair, hides an area containing many star clusters and nebulae.
- C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- D: Sweep along the Milky Way for an astounding number of faint glows and dark bays.



Astronomical League Outreach



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

Brilliant Venus passes bright Jupiter

Look to the west-northwest 60 minutes after sunset in early June as the Venus/Jupiter gap narrows.

- On June 8, brilliant, unmistakable Venus lies slightly below and right of the lesser Jupiter.
- The next evening finds Venus having moved slightly above Jupiter.
- Then on succeeding evenings, Venus pulls above Jupiter, while the mighty planet drops toward the horizon.
- Enhance the view by using binoculars.
- All the while, the much dimmer Mercury lies close to the horizon in the bright twilight.

End your day with this enchanting meet-up!

Astrophotography



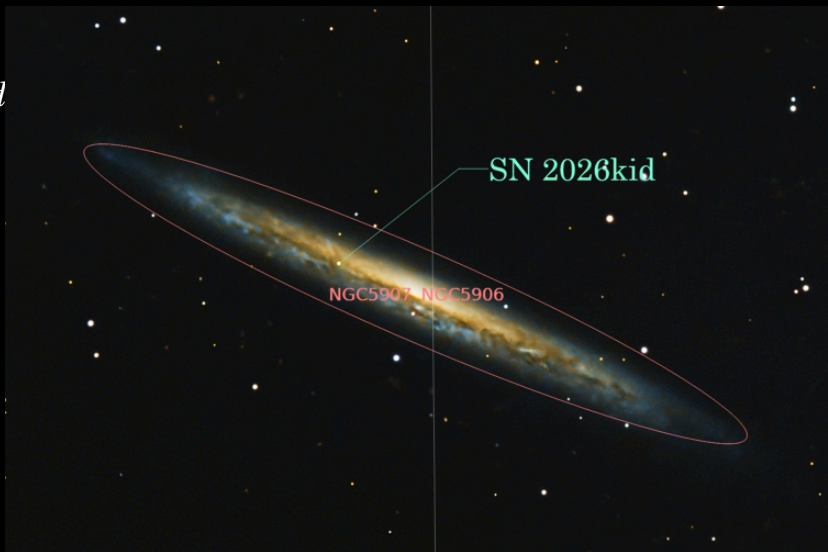
*Comet R3 (PANSTARRS) by Leona Barratt
Caught low on the eastern horizon just before sunrise, comet R3 (PANSTARRS) makes a
brief and beautiful appearance.
Vespera 1 200mm 10 minutes*

Astrophotography



The image is NGC 5906/NGC 5907 and Supernova SN 2026kid by Jim White. NGC 5907 is commonly referred to as the Knife Edge Galaxy or Splinter Galaxy and Supernova SN 2026kid was just discovered on April 22nd, 2026

Image details: Image date: 5/9/2026, 45 6 minute exposures, 30 Darks, Flats and Dark Flats. Scope: Celestron 925 EdgeHD, Camera: ASI 2400mc Pro, Celestron OAG (Off Axis Guider), Guide Camera: ZWO ASI 174MM



Astrophotography



*Messier 61, NGC 4301, NGC 4292 by Brett Boller
May 8-10th, 2026
87 x 3 minutes ZWO ASI2600MC Pro Duo / ZWO AM5N
Friend, Nebraska*

From the Archives, May, 1976

Behlen Public Night, Gateway Sky Show Highlight Month's Club Activities

(Earl Moser was caught up in committees, graduations, and astronomy programs when we called for this month's President's Report, so Vice President Larry Stepp has filled in for Earl. --Ed.)

Eight telescopes and about twenty people from the Prairie Astronomy Club assisted at the Behlen Observatory Public Night on Friday, May 7.

The Omaha Astronomical Society provided nine telescopes and about the same number of people as the Lincoln club. Visitors to the observatory's 30-inch telescope were given the opportunity to take extended looks through a variety of instruments, including Roger Besch's 12 1/2-inch Cave, Rick Johnson's 10-inch f/8, Bill Besch's Criterion RV8, Merton Sprengel's

Celestron 8, Earl Moser's Dynamax 8, Brad Bender's 6-inch custom, Jeff Mallatt's Criterion RV6, and Dr. Robert Manthey's 3 1/2-inch Questar.

The Boiler & Chivens 30 was trained on Saturn several times during the session, along with M82 and M31. Saturn was crisp and detailed early in the evening, but as the night progressed seeing deteriorated to the point where it was as well seen through some of the amateur instruments.

Films and slides were shown inside the observatory. Dr. Manthey and his daughters provided popcorn for the crowd, and both clubs handed out material on their programs to prospective new members.

The night of May 6 saw three telescopes on the mall at Gateway Shopping Center for the monthly sky show.

Bill Besch brought out his Criterion RV8, Rick

Johnson was on hand with his 10-inch f/8, and Earl provided his Dynamax 8. Everyone agreed it was the best seeing in many a quarter moon for a Gateway sky show. The atmosphere was steady enough to allow high powers on the moon, and elusive features such as pair of small craters on the floor of Plato were easily seen.

Although daylight saving time cut into the length of the show, crowds were good with people waiting at the telescopes during the entire show.

It's always interesting to give a first-time skygazer his maiden glimpse through a telescope. It has been my experience that 15-20% of first-timers think they're looking at a picture, not the real thing. And another 15-20%, when shown the moon for the first time, want a good look at the footprints, launch stand, lunar rover, etc., that the astronauts left behind!

We are getting much better turnouts from the club at these affairs, and we want to encourage more members to bring out their telescopes. Believe me, it is anything but a dull experience--giving people what may be a once-in-a-lifetime look through a good astronomical instrument, and sharing their excitement at discovery is worth the little time it takes to unpack and set up.

And... you never can tell who might wander by. Earl had an interesting chat with Walter Behlen (yes, that Behlen), who happened upon our little group, and talked telescopes for awhile.

The next Gateway show will be Thursday night, June 3. Make plans now to be there.

A solar eclipse at Gateway's flagpole, March 7, 1970. This is about where Applebee's is located now. PAC held star parties at Gateway starting in the early 1960s up until Hyde Observatory was built. In this photo, John Johnson is just left of the flag pole and Rick Johnson is on the right side of the pole.

A reminder about two conventions coming up: The Mid-States Regional--University of Missouri-Rolla campus June 18, 19 and 20. Cost is \$20.25 for 2 nights lodging and six meals, including the Saturday night banquet. The banquet speaker will be Dr. John Dickel of the University of Illinois, whose interests are supernova remnants and late stellar evolution. Check with Earl Moser for further details and registration forms. Advance registration is desirable, though not mandatory.

Astronomical League--ALPO National Convention-- Kutztown, Pennsylvania, August 18-22. Highlights include a tour of the Franklin Institute, Francklin Arsenal Optics Lab, a speaker from the

Smithsonian Institution on the convention theme, "Two Hundred Years of Amateur Astronomy"; a speech by Dr. Charles Price, Benjamin Franklin Professor of Chemistry, about 'Stellar Evolution and the Origin of Life', and a real coup: a NASA report of the Viking landing on Mars by project leaders via "telelecture." The cost of approximately \$47 will cover registration, housing for four days, banquet, and meals for three highlight days of the convention. Pre-registration forms can be found in the center of the February issue of The Reflector. It would be nice to have the club well represented at both of these important amateur conventions.

Larry Stepp



ADDRESS

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

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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](https://www.amazon.com) or [lulu.com](https://www.lulu.com).