

The Prairie Astronomer

March 2023 Volume 64, Issue #3



The Orion Nebula by Leona Barratt

IN THIS ISSUE: Winter Wonderland on Mars
Iridescent Clouds on Mars
ARP 53



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer



The next regular meeting is March 28th at 7:30pm at Hyde Observatory

NEXT MEETING AND PROGRAM

Nathaniel Cunningham, Professor of Physics at Nebraska Wesleyan University, will talk about the new science goals of NASA's New Horizons mission as it cruises through the outer solar system, well past its main science targets of Pluto (observed up-close in 2015) and Kuiper belt object Arrokoth (2019).

UPCOMING PROGRAMS

April: Nancy Grace Roman Space Telescope

May: Annual Club Dinner

June: Solar Star Party

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Cover: Orion Nebula by Leona Barratt. Vaonis combination telescope/camera, 2MP (1920x1080), APERTURE. 50 mm. 2 in ; LENS. Apochromatic Quadruplet. 15.75 in ; FOCAL LENGTH. 200 mm., Approximately 1 hour's worth of data. Post processing with Affinity Photo 2 and Photoshop.

Background photo: Brett Boller



CALENDAR

The PAC Calendar is now available as a [Google Calendar](#).

PAC Meeting
 March 28th, 7:30pm at Hyde Observatory
 Program: NASA's New Horizons Mission - Nathaniel Cunningham

PAC Meeting
 Tuesday, April 25th, 7:30pm at Hyde Observatory
 Program: Nancy Grace Roman Space Telescope - Kevin Gallagher

Annual Club Dinner
 Tuesday, May 30th

PAC Meeting
 Tuesday, June 27th 6pm at Hyde Observatory
 Solar Star Party
 New Club Photo will be taken - bring your telescope!

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

2023 STAR PARTY DATES

	Date	Date
January	13	20
February	10	17
March	17	24
April	14	21
May	12	19
June	9	16
July	7	14
NSP	7/16	7/22
August	11	18
September	8	15
October	6	13
November	3	10
December	8	15

Dates in **BOLD** are closest to the New Moon.

CLUB OFFICERS

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Night Sky Network



www.prairieastronomyclub.org

The President's Message

Jason O'Flaherty

As we bid farewell to the chilly March winds and welcome the warmth of spring, I hope this newsletter finds you all in good spirits. Can you believe it's already been another month since our last meeting? Time flies when you're exploring the cosmos! Speaking of exploring, let me tell you about some of the exciting events and updates that have been happening in our club over the past month.

As discussed at our February meeting, we had a productive visit to the bank where Bob Kacvinsky, John Reinert, and I renewed our CD for 13 more months at a favorable 3.4% rate. We also transferred \$5000 from savings to another CD to get that money working for the club. In addition, we changed secondary signatories from Bob to me to continue with the hand-off process.

John sent out dues renewal notices at the start of the month, so please renew your membership if you

haven't done so already so he doesn't have to track you down.

Mark Dahmke created a public PAC Google Calendar, which you should have received an email invitation to view. This calendar will be the primary way we track upcoming events. It also lists all of our Star Parties and Club meetings. I'll discuss it more at our March meeting.

Speaking of our March meeting, we have an exciting guest speaker joining us: Nathaniel Cunningham, PH.D., who will be talking about what's next for the New Horizons mission. New Horizons is a NASA mission launched in 2006 to study Pluto and its moons. In 2015, it became the first spacecraft to ever encounter Pluto, revealing a diverse and dynamic world. The mission was extended to study a Kuiper Belt object called Arrokoth, which it flew by in 2019, providing new insights into the early solar system.



Looking ahead, we have some great events planned for the next month. First up is Astronomy Day, which is now on its 50th year. It is being held on April 15th. Morrill Hall will be celebrating with an event that night. It coincides with some of our usual volunteers being out of town. However, we have one club volunteer helping, but they could use another. Talk to Christine if you're interested.

We also have a couple of outreach events on April 29th, including Wild Adventures solar observing from 1 p.m. to 4 p.m. at Pioneers Park Nature Center and Deep Sky Stargazing at the Filley Stone Barn near Filley, Nebraska. These events are open to the public, so invite your friends and family.

Looking a bit further ahead, we plan to take a

new club photo at our Solar Observing Party on June 27th, the same day as our Club meeting that month. We'd love to have as many members as possible represented in the photo. Please mark it on your calendars and plan to attend. As an added incentive, some

birthday cake might be available if you need a bribe since I don't want to eat my 40th birthday cake alone. I'm told it's not the years of your life but the cake in your stomach that matters the most.

Thank you for your continued support of

our club, and I look forward to seeing you more as the weather continues to warm up.

Sincerely yours,

Jason

Outreach Opportunities

Christine Parkyn

Here are our upcoming outreach events. To volunteer to support an event, let Christine Parkyn know at cpparky@gmail.com.

Astronomy Night: April 15, 2023 (Change in Original Date from April 22) at Morrill Hall from 5 to 9 p.m. Have 1 volunteer; would like 2-3 more.

Wild Adventures: April 29, 2023 at Pioneers Park from 1 to 4 p.m. Have 1 volunteer; would like 2-3 more. Solar observers desired for this daytime event.

Lunar Observations: April 29, 2023 at Filley Stone Barn from 8:30 to 10 p.m. Have 1 volunteer; would like 3 more.

Constellation Talk/Stargazing: June 27, 2023 at Camp Carol Joy Holling from 10:30 to 11:30 p.m. Have 1 volunteer; would like 2-3 more.

Constellation Talk/Stargazing: July 25, 2023 at Camp Carol Joy Holling from 10:30 to 11:30 p.m. Have 1 volunteer; would like 2-3 more.

Welcome New Members!

Rachel Scheet
 Caleigh Bernhardt
 Leona Barratt
 Paul Spieker
 Kale Strizek

Meeting Minutes

Jim White

Jason started the meeting at 7:34 p.m.

We have two new members joining us at tonight's meeting, Kale at Hyde and Leona joining us via Zoom.

Jason turned the meeting over to Jim Kvasnicka at 7:36 for his March observing report.

March star parties are planned for Friday the 17th and Friday the 24th at the Clatonia Recreation Area and the April star parties are Friday the 14th and Friday the 21st also at the Clatonia Recreation Area. On March 1st, tomorrow night, Venus and Jupiter will only be separated by $\frac{1}{2}$ degree. Mercury is very low after sunset and hard to see. Jim's complete observing report can be found in this newsletter.

At 7:39 Jim finished his observing report and the meeting was turned over to John Reinert for his treasurers report.

John reported that Dave Knisely, Lee Taylor and John were able to get together recently and complete the annual club audit. Bob Kacvinski, Jason O'Flaherty and John Reinert were able to get together at Bank of the West last weekend to get some changes made to the signatory's for the clubs accounts and they also were able to secure a 3.4 percent rate for 13 months for the clubs cd(s). We are having success with our online dues payment so far. John turned the meeting back over to Jason at 7:40.

The clubs how to use your telescope class at Branched Oak Observatory was a success with quite a few members showing up to observe and to help members of the public who have had or recently acquired telescopes and needed help setting them up and using them or had questions about their equipment. There was

some learning to be done by club members as well as the public because of some of the fairly new to the market telescopes that are used along with a cell phone mounted to the telescope to aid in finding objects in the sky to view.

There are astronomy parties coming up for those who may want to travel. The Texas Star Party, Rocky Mountain Star Stare and the 30th Annual Nebraska Star Party are coming up between now and the end of July. The Nebraska Star Party will be July 16th through July 22nd at Merritt Reservoir. Last years registration was about 330. The club had a board meeting recently to go over responses from the survey that was sent out in December and to discuss getting a committee together to review and propose updates to the club's bylaws so that they can be presented to the club

for review and be voted on later this year. Christine Parkyn said that the April Astronomy Day event at Morrill Hall on the University Campus got moved to April 15th so we lost some volunteers due to the date change and could possibly need

some more help, the time will be from 5-9 p.m. If you're able to help please reach out to Christine.

With no more new business the meeting was adjourned at 7:49 p.m.

Tonight's presentation is by Dave Hostetter on "Stuff That Never Flew." Dave is joining us via Zoom from Louisiana. Dave is the retired planetarium curator from the Lafayette Science Museum.

Board Meeting Minutes, February 21, 2023

Jason O'Flaherty started the meeting at 7:00 pm.

Attendees: Jason O'Flaherty, Jim White, John Reinert, Bill Lohrberg, Mark Dahmke, Jim Kvasnicka, Bob Kacvinski and Brett Boller who joined remotely.

Tonight's agenda is to review the results of the survey that Jason sent to the club membership in December. There were 17 members that completed the survey.

Item 1:

Quality of our meeting presentations and guest speakers.

10 responded excellent

6 responded pretty good

1 responded alright

Discussion related to responses - It's encouraging that so many responded pretty good to excellent although it is realized that the number of responses was well below half of the club membership.

Item 2:

What would you most like to see improved with presentations and guest speakers.

6 responded nothing

4 would like to have more in-person presenters

3 would like more club presenters

2 would like more variety

Board Meeting Minutes, continued.

Comments:

1: There always seems to be technical issues. It shouldn't be too difficult to iron these out before the meeting.

2: I am still getting familiar with the club. I am probably more interested in the basics.

Discussion -

1: There was a discussion of contacting local presenters that the club has had at previous meetings that we haven't used in the last several years.

2: Our presentation for the March meeting is from the immediate area.

3: It is difficult to find local presenters because of the size of our community and the relatively small size of the UNL and Wesleyan astronomy programs.

4: We have had a presentation from UNL in the past on space law that may be good to have again.

5: Astrophotography presentations seem to be popular.

6: A question to ask for another survey is whether we should do some special session's for newer members that cover some of the basics that may not be of interest to more experienced members.

7: Phil Plait (AKA The Bad Astronomer) will be in the state in the April time frame for a book tour and would possibly be available the

evening of our April meeting. His agent called and is trying to find more spots for his book tour but there would be costs associated with having him as a speaker. The cost to have him speak to our club alone is prohibitive unless there were other entities involved to help defer the cost such as the Omaha Astronomical Society (one suggestion), SAC Museum or other sponsors. The club also has a speaker scheduled for our April meeting and we don't want to be rude to that speaker.

8: We are trying to get our technical issues ironed out. There has also been a hardware failure at Hyde recently that we are also dealing with.

Item 3:

Presentation Topics.

-Information for personal knowledge (Telescopes, eyepieces, cameras, software, etc.) 11

-Earth-based observing (Observatories, Dark Sky Sites, etc.) 9

-Celestial Bodies (Planets, Stars, Black holes, etc.) 9

-Space Exploration 7

-Space Hardware (Rovers, probes, Space telescopes, Rockets, etc.) 4

-Astronomy Education 1

-Galaxies, Nebula, etc. 1

Discussion-

1: Mentors do get a lot of questions concerning what type of eyepieces/equipment do you recommend.

2: We do need to help educate beginners about eyepieces/equipment etc. and they don't necessarily need to be long presentations.

3: Possibly get with parks and recreation about getting some beginning astronomy courses listed in their course catalog. (This is something that has been done in the past with PAC).

4: Do some short segments in between programs on Saturday nights at Hyde to appeal to beginners and it could be good exposure for PAC.

Item 4:

Zoom Improvements.

-Better interaction between Zoom and those in person. 7

-Better audio, better video, better streaming of guests, better quality, nothing. 1 each

-Comment: Remote meetings add a level of difficulty to things.

Discussion-

1: We need to improve the microphone and speaker setup so remote attendants are able to talk and interact with the group. Some of this is complicated with the mix of hardware involved.

Item 5:

Okay to stream on Facebook as view only?

-Yes 15

-No 2

Item 6:

How far are you willing to drive from Lincoln?

-1 hour 5

-Less than 30 minutes (Cortland too far) 4

-30 min 4

-1.5 hours 3

-2+ hours 1

Discussion-

1: Drive time can vary quite a bit between members depending on where they live in Lincoln and where the star party is located.

2: Branched Oak Observatory is open to PAC members if they give them notice that they would like to come out.

3: Longer drive generally gets darker skies.

4: Possibly rotate star party locations more frequently.

5: The closer you are to the city, the lower the number of items that can be observed.

6: Try to do lunar parties more often if

Board Meeting Minutes, continued.

there is enough interest.

Item 7:

Would you like to see anything changed about the Star Parties?

-Closer to Lincoln if possible. More involvement with Mentors.

-It would be nice to lease a site with amenities like porta-potties.

-I really enjoyed meeting the public out at the Spring Creek Prairie, and like doing so at Hyde as well.

Item 8:

Do you own a telescope, binoculars or camera for astronomy?

-Yes, and I know how to use it. 13

-Yes, but not comfortable with it. 3

-No, but I want to get something. 1

Item 9:

What type of observer are you?

-Deep sky objects. 11

-Observe whatever I want. 11

-The moon and planets. 10

-Things in our galaxy. 8

-Observing programs. 7

-Astrophotography. 3

-Radio. 1

-Social aspect. 1

Treasury

Item 10:

Are dues used appropriately?

-Yes. 16

-No. 1

Item 11:

Move to a single month to collect dues?

-Yes. 16

-Maybe. 1

Item 12:

If single month, which quarter for collecting?

-Quarter 1. 12

-Quarter 2. 3

-Quarter 3. 1

-Quarter 4. 1

Discussion-

1: August-September time frame might work well for families as their schedule for the school year starts in the August-September and club elections are in October which may be beneficial to the club and planning for the upcoming year.

2: Changing to single month dues collection would require changing the club's bylaws.

Item 13:	Public outreach event?
How do you prefer to pay dues?	-Yes. 8
-Digital. 11	Ethan Johnson, Dave Dickinson, Dan Delzell, Jim Kvasnicka, Jim White, Mike Engel, Lee Taylor, Don Hain
-Check. 6	
Item 14:	-Maybe. 6
Overall satisfaction with PAC Membership (1-5)	Mark Dahmke, Starla Scleicher, Dave Churilla, Christine Parkyn, Tony Oberley, Bill Lohrberg
-5. 11	
-4. 4	-No. 3
-3. 2	Item 18:
Item 15:	Mentor Program?
Volunteering and Participation, Officer?	-No. 7
-Maybe. 8	-Maybe. 6
Ethan Johnson, Dave Dickinson, Christine Parkyn, Jim White, Mike Engel, Lee Taylor, Don Hain, Bill Lohrberg	Ethan Johnson, Dave Dickinson, Larry Stepp, Dan Delzell, Christine Parkyn, Mike Engel
-No. 9	-Yes. 4
Item 16:	Jim Kvasnicka, Jim White, Lee Taylor, Don Hain
MSRAL Officer?	Item 19:
-No. 12	Other thoughts
-Maybe. 4	1: I'm very impressed with PAC
Ethan Johnson, Christine Parkyn, Lee Taylor, Don Hain	2: I couldn't choose "5" for the last question on page 3 (how satisfied...)
-Yes 1	3: I do think we need to do more outreach. The majority of members are older men. I'm not certain how we
Jim White	
Item 17:	

Board Meeting Minutes, continued.

change that, but there's an opportunity to reach many more people. I'm happy to discuss more in person.

4: Thanks for asking these questions!

-Programs to encourage younger astronomy enthusiasts, and a diversity of individuals, are very important.

-Bob was an excellent President. I have no doubt that Jason will do a great job as well.

-It would be nice to have a hospitality team for treats during meetings.

-Going back to programs. You talked the topics and tech. Presenters themselves vary in quality of ability to present. That's nothing new. But good to vet the person and maybe see some example from them in advance (I'm thinking of that Solar System Ambassador). Being retired in South Carolina a little hard to participate except in Zoom. If I were still there I'd be happy to mentor. Keep Looking Up.

-Need to make an effort to spend more time helping new members. The Mentor Program is a good start.

Topics for the Meeting Discussion

1) Rotating hospitality person

New person each month

Greet people as they arrive

Bring cookies or snacks

Discussion-

-Having snacks and having someone to greet people as they come in has been tried a number of times with varying degrees of success. Not a dead issue, definitely needs consideration.

-It would be nice to have some social time to greet people and visit ahead of the meeting but one of the issues that we have is there is a Hyde board meeting taking place ahead of our monthly meeting and we are trying to be respectful to them and not disturb their meeting. Mark is going to bring this up at the Hyde board meeting and see if there is an opportunity for that meeting to start a little earlier and give us a little bit of a buffer between the two meetings.

-Maybe making a stop at Culver's or another location after the meeting would also be a good chance for people to socialize.

-Possibly hang out outside Hyde when the weather cooperates.

2) New members and the mentor program.

Discussion-

-We have 7 mentee's and 6 mentors currently.

-John will pass along new member information to Bob so he can touch base with new members.

-Possibly include new members in the newsletter.

-Bob will send out a notification to the club membership letting them know that they can get in touch with him if they are interested in having a mentor or being a mentor.

-The goal is to try and get together at least once a quarter.

-The observing challenges helped with getting the mentors and mentee's together.

-Is there a list of when people joined the club? Some of that information is available to club officers on The Night Sky Network.

-Get a new member kit to new members. Jim K. has information put together, he just needs to know who the new members are so he can pass along the information.

3) Group Calendar

-Do we want to create a shared calendar for events?

-Mark Dahmke is going to look into creating a group calendar in Google to share so we can keep club events up to date.

4) Star Party Calendar for members

-There is a Star Party schedule in the monthly newsletter that lists all of the star party dates for the year.

5) Do we have a list of all currently scheduled events?

-See number 3 above.

6) Update titles on Night Sky Network

-Mark Dahmke will make sure that those who need editing privileges gets updated.

7) Can we get a report of the start dates of members?

-See number 2 above.

8) Include a yearly explanation at meetings about Hyde and BOO.

-How we as a club tie into them.

-Volunteering opportunities.

-General information.

-Volunteering at Hyde.

9) Discord Server

-Do we want to pursue other forms of voluntary communication?

-Could we tie into Omaha's as a private sub-page, then share the general topics, like telescope talk, etc.

10) How often do we rotate star party locations?

-See item 7 in first section.

11) Open discussion on dues.

-See items 10-13 in first section.

12) Open Discussion on Events and Volunteers.

-Do we have enough volunteers.

-Is our load manageable?

-Is the line of communication adequate?

Board Meeting Minutes, continued.

13) Library and equipment checkout program.

-Bylaws have not been updated since 1994.

-Has the key to the library cabinet been located?

-The committee needs to review the bylaws and bring them up to date.

-Library cabinet probably needs to be cleaned out and make sure we don't get rid of any historical club information.

-The committee will review and update the bylaws and then bring them to the club membership for review and for the club to vote on after 30 days.

14) When was the last time we did a club photo? Is it time to do another one?

-The current plan is to have an updated draft of the bylaws ready to present to the board in May so that they can be reviewed and have a final draft ready to present to the membership in August so that it can be voted on in September.

-Last photo was taken in 2010.

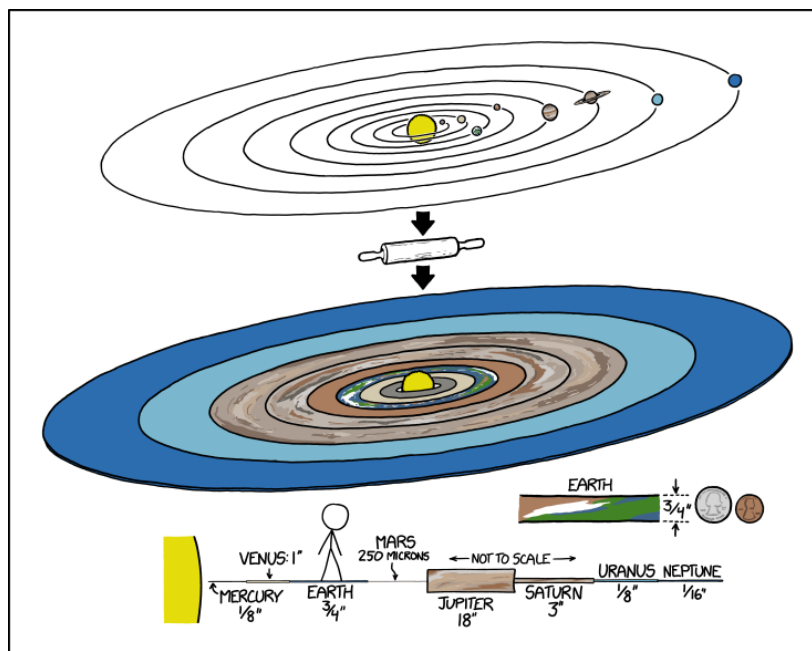
-Let's try and setup for a club photo at our June solar observing club meeting!

15) Bylaws

-Mark Dahmke volunteered to head up the committee.

-Mark Dahmke, John Reinert, Jim White and Bob Kacvinski have volunteered to be on the bylaws committee.

The meeting adjourned at 8:35 p.m.



I DON'T KNOW WHY NASA KEEPS REJECTING
MY PROPOSALS TO IMPROVE THE SOLAR SYSTEM

xkcd.com

Curiosity Views Feather-Shaped Iridescent Cloud

NASA's Curiosity Mars rover captured this feather-shaped iridescent cloud just after sunset on Jan. 27, 2023, the 3,724th Martian day, or sol, of the mission. Studying the colors in iridescent clouds tells scientists something about particle size within the clouds and how they grow over time.

These clouds were captured as part of a follow-on imaging campaign to study noctilucent, or "night-shining" clouds, which started in 2021. While most Martian clouds hover no more than 37 miles (60 kilometers) above the ground and are composed of water ice, these clouds appear to be higher in elevation, where it's very cold. That suggests these clouds are made of carbon dioxide, or dry ice.

This scene made up of 28 individual images captured by the rover's Mast Camera, or Mastcam. The images have been processed to emphasize the highlights.

Curiosity was built by NASA's Jet Propulsion Laboratory, which is managed by Caltech in Pasadena, California. JPL leads the mission on behalf of NASA's Science Mission Directorate in Washington. Malin Space Science Systems in San Diego built and operates Mastcam.

For more about Curiosity, visit <http://mars.nasa.gov/msl>



ARP 53

The Mantrap Skies Image Catalog



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 53/NGC 3290 is located in Hydra about 490 million light-years distant according to its redshift. Arp put it in his category for spirals with high surface brightness companions on an arm. He made no comment on it. NED classes it as SAB(rs)bs pec with HII emission. The obvious feature of this one is the long arm with a blue knot (the "high surface brightness companion"). But what's really strange is that the arm is shadowed by a fainter more diffuse but disconnected arm that runs parallel to the major arm. The "companion" isn't listed as a separate galaxy at NED but then most of the galaxies in the image aren't cataloged. In fact, NED lists no galaxies within 9.9 minutes of arc of Arp 53! The only galaxy in the image with a redshift measurement besides Arp 53 is the IR source 2MASX J10360744-1721350. It is the vertical oval southeast of Arp 53 and east of the bright M (orange) star in the image toward the lower left corner. It is 480 million light-years away so likely related to Arp 53. Though it shows no distortion so likely has never interacted with it. It was discovered by



ARP53, continued.

Francis Preserved Leavenworth in 1886. His logs only showed the year of his discovery. And yes his middle name is Preserved.

So what caused the drawn-out arm with its shadow companion? Likely some interaction which could be due to that blue object on the arm. None of the papers I found seem to see it as a separate galaxy, just referring to the arm as having bright knots.

Unfortunately, it is out of the Sloan survey field so they've not weighed in on this issue. A search turned up no likely candidate even well out of my field of view. It could be the blue blob is to blame but I'm not sold on this. I wonder if this one isn't the result of a merger. I see that as more likely to create an apparent shadow arm. There are plenty of examples of M51 type systems with a companion on the arm. None have shadow arms

but some mergers do create arcs of stars that haven't yet returned to the galaxy's halo. It could be this is one that, by line of sight, happens to about follow the arm. Yeah, that's a huge reach too. Probably too much of one. So this one will have to await further imaging of it. HST are you listening?



NASA's Ingenuity Mars Helicopter is seen here at the starting point of its 47th flight on Mars. [This video](#) shows the dust initially kicked up by the helicopter's spinning rotors, as well as Ingenuity taking off, hovering, and beginning its 1,444-foot (440-meter) journey to the southwest. The rotorcraft landed – off camera – at Airfield "Iota."

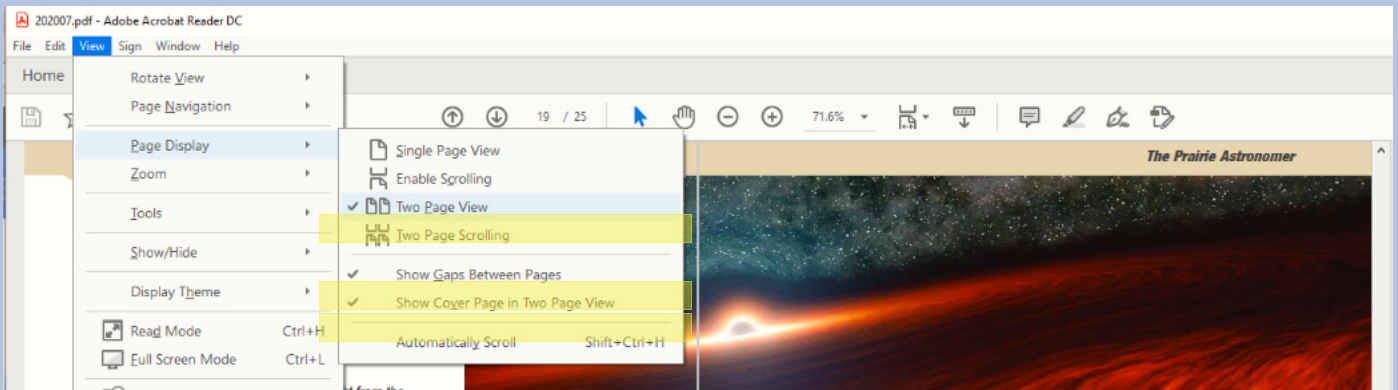
The video was captured by the Mastcam-Z imager aboard NASA's Perseverance rover on March 9, 2023. At the time the video was taken, the rover was about 394 feet (120 meters) from the helicopter.

Credit: NASA/JPL-Caltech/ASU/MSSS

Notices

New Newsletter 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.

PAC Newsletter Archive

Back issues of the *Prairie Astronomer* from 1962 to present are now available online:

<https://www.prairieastronomyclub.org/newsletters>

Pay Dues Online

<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

Focus on Observing Programs

Jim Kvasnicka

Messier Observing Program

There are over 50 observing programs offered by the Astronomical League that PAC members can choose from. These programs range in experience level from beginning, intermediate, and advanced observer.

The first observing program I will focus on is the most popular, the Messier Observing Program. All amateur astronomers become aware of the Messier Catalog soon after they get into the hobby of astronomy. The Messier list contains 110 objects to observe. The objects cover a variety of Deep Sky Objects. Observations must be made using manual methods to find the objects. The use of GOTO or PUSH TO telescopes is not allowed. The Astronomical League offers special recognition in the form of a Messier Program Certificate for those who observed at least 70 of the Messier objects. They offer an Honorary Messier Certificate along with a Messier Pin for those who have observed all 110 objects.

When you complete the Messier Observing Program you will need to provide a copy of your observing logs to me for review. If the logs are accurate and complete I will submit

your name to the Messier Observing Program chair for approval. The chair will send to me your certificate and pin which I will present to you at our monthly PAC meeting.

In my monthly observing report that I include in the newsletter and present at the club meeting I go over a monthly Messier list. If you observe and log these Messier objects each month you can complete the Messier Observing Program in 12 months.

If you need help getting started or have questions regarding the Messier Observing Program you can ask me, I would be glad to help.

Objects in the Messier Observing Program:

Star Cloud - 1
 Nebulae - 7
 Asterism - 1
 Open Clusters - 26
 Double Star - 1
 Globular Clusters - 29
 Supernova Remnant - 1
 Galaxies - 40
 Planetary Nebulae - 4
 Total Objects - 110

April Observing

Jim Kvasnicka

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

Planets

Venus: In the west after sunset at magnitude -4.1.

Mercury: In the evening sky after sunset below Venus.

Mars: In Gemini at magnitude +1.2.

Jupiter, Saturn, Uranus, and Neptune: Not visible in April.

Meteor Showers

Lyrids: Peaks the night of April 22-23. Expect up to 15 meteors per hour. The crescent Moon will set before midnight creating optimal viewing conditions.

Messier List

M40: Multiple star in Ursa Major.

M65/M66: Part of the Leo Triplet Group.

M95/M96: Galaxies in Leo that fit in the same FOV.

M105: Galaxy in Leo.

M106: Galaxy in Canes Venatici.

M108: Galaxy in Ursa Major.

M109: Galaxy in Ursa Major.

Last Month: M41, M44, M46, M47, M48, M50, M67, M81, M82, M93

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

NGC and other Deep Sky Objects

NGC 2903: Elongated galaxy in Leo.

NGC 3077: Galaxy in Ursa Major.



NGC 3384: Galaxy in Leo.

NGC 3521: Elongated galaxy in Leo.

NGC 3631: Galaxy in Ursa Major.

NGC 3675: Elongated galaxy in Ursa Major.

Double Star Program List

Alpha Leonis: Regulus, white and yellow stars.

Gamma Leonis: Algieba, pair of yellow stars.

54 Leonis: Yellow primary with a greenish colored secondary.

Alpha Canum Venaticorum: Cor Caroli, bluish white and greenish yellow stars.

Zeta Ursa Majoris: Mizar, pair of white stars.

Gamma Virginis: Porrima, close pair of yellow stars.

24 Comae Berenices: Yellow primary with a pale blue secondary.

Delta Corvi: White and rose-colored stars.

Challenge Object

NGC 3577 and NGC 3583: Galaxy pair in Ursa Major. NGC 3583 is the larger and brighter galaxy with much smaller and dimer NGC 3577 located 5' to the SW.

Club Member Profile: Leona Barratt

Leona joined PAC in 2023



I recently retired from the University of Nebraska-Lincoln having spent almost all of that time working with technology. I started by entering data for Biometry, imaging 35mm slides for faculty presentations and doing some basic SAS programming. For the last 20 plus years I worked for Information Technology Services supporting faculty in their use of technology to enhance instruction. I mainly focused on the Learning Management System where we started with Blackboard then transitioned to Canvas. I was honored to be given the Technology Excellence Award in 2019 for these efforts in this transition across all three campuses.

During my last years at UNL it became quite a challenge as the university shut down due to Covid and all courses were held online. With all hands on deck, we managed to make it through those challenging times.

I retired from UNL in June of 2021.

I recently joined PAC in January of this year. It's been something I've been thinking about doing for a couple of years and have finally taken the leap.

My father, Earl Moser, spent most of his life as a member of the PAC club and spent 10 years as the PAC president. He would often encourage me to look through his telescope, but my interests were usually elsewhere.

Astronomy and the PAC was my dad's happy place.

Dad passed in 2014 and I ended up with his first small reflector telescope that had been sitting in the basement covered with a large trash bag. One of the wonderful PAC members refurbished this old telescope, wooden legs and all. Shortly after that I took the telescope outside to show my mom the moon through dad's old telescope. This was a special moment for both of us and started the first spark of interest in astronomy for me.

Later, I was going through my dad's treasured box of astronomy "stuff." I found old PAC newsletters, Sky & Telescope magazines,

35mm slides of various objects that dad had photographed through his telescope and a star chart. I thought it would be fun to try and find the Andromeda galaxy with just a pair of binoculars and his star chart.

After several minutes of rechecking my target area a beautiful image of the Andromeda galaxy came into view. I finally understood my dad's excitement and love for the night sky. I purchased a star tracker and started experimenting with my Nikon and 300mm lens to capture a few deep sky objects.

Besides my dad's old 3-inch reflector telescope, I purchased a Vanois Vespera telescope. It's a robotic telescope that's a combination of telescope and camera that I run with an application. I'm beginning to experiment with some astrophotography.

With the combination of NSP events that I attended with my dad and myself, I've been to

five NSP parties. I've registered for the upcoming event this July and hope to test my new telescope out at this wonderful event.

I've missed so many years of opportunities learning from my dad and I hope that it's not too late to start now. I'm anxious to learn as much as I can.

I think I can feel my dad looking down and smiling now that I've finally started to share his love of astronomy.



NASA Explores a Winter Wonderland on Mars

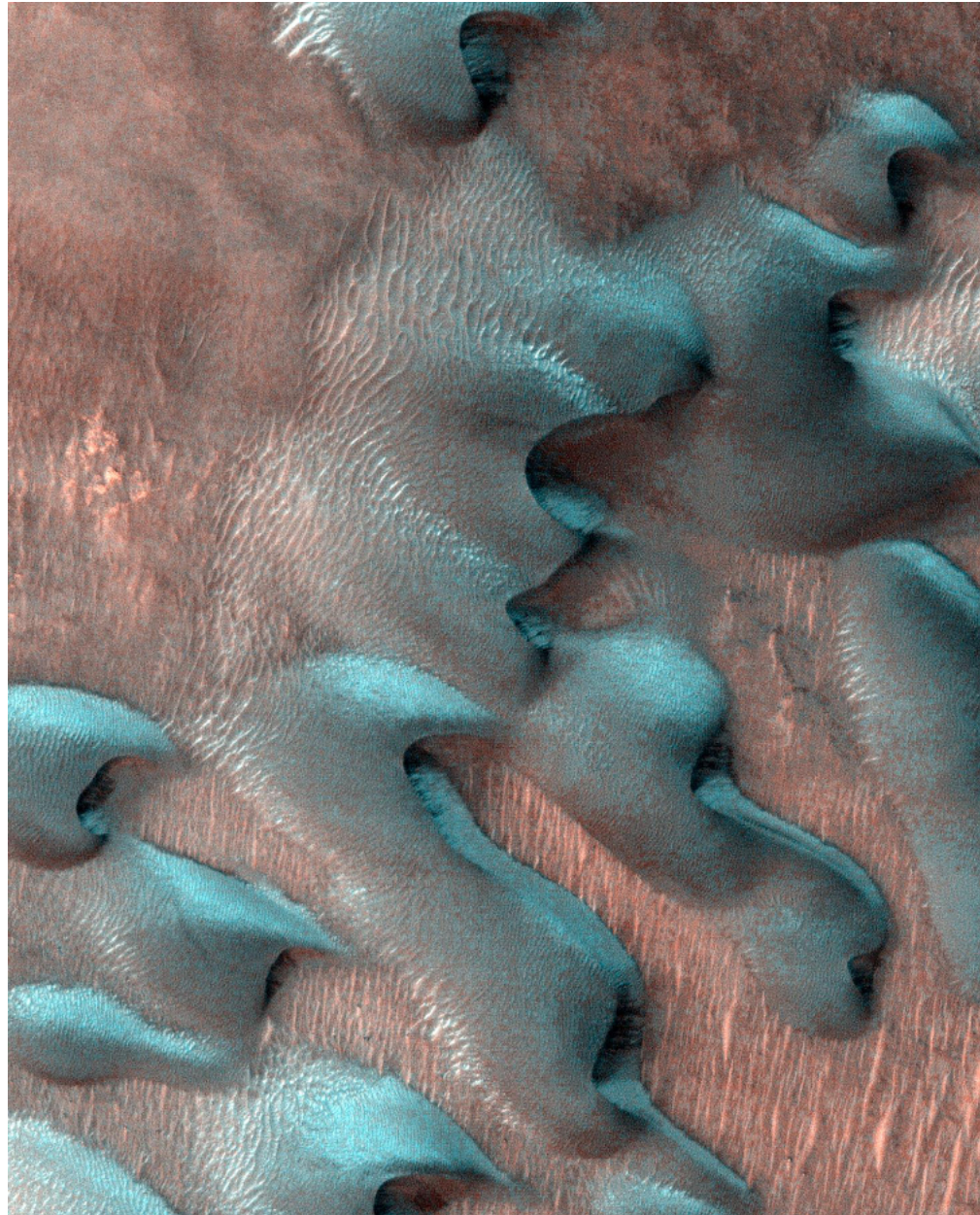
Cube-shaped snow, icy landscapes, and frost are all part of the Red Planet's coldest season.

Cube-shaped snow, icy landscapes, and frost are all part of the Red Planet's coldest season.

When winter comes to Mars, the surface is transformed into a truly otherworldly holiday scene. Snow, ice, and frost accompany the season's sub-zero temperatures. Some of the coldest of these occur at the planet's poles, where it gets as low as minus 190 degrees Fahrenheit (minus 123 degrees Celsius).

Cold as it is, don't expect snow drifts worthy of the Rocky Mountains. No region of Mars gets more than a few feet of snow, most of which falls over extremely flat areas. And the Red Planet's elliptical orbit means it takes many more months for winter to come around: a single Mars year is around two Earth years.

Still, the planet offers unique winter



phenomena that scientists have been able to study, thanks to NASA's robotic Mars

explorers. Here are a few of the things they've discovered:

Winter Wonderland, continued.

Two Kinds of Snow

Martian snow comes in two varieties: water ice and carbon dioxide, or

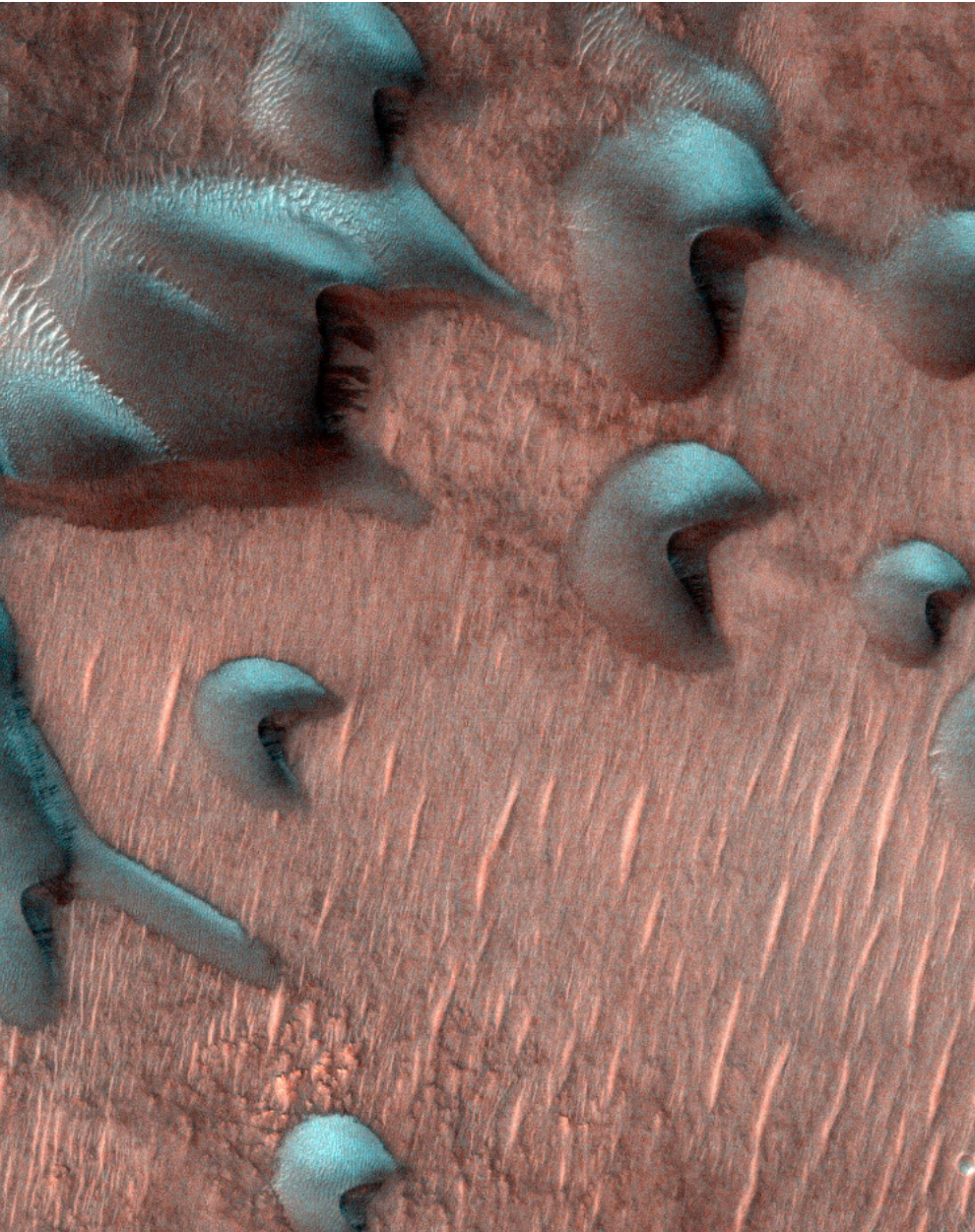
dry ice. Because Martian air is so thin and the temperatures so cold, water-ice snow sublimates, or becomes

a gas, before it even touches the ground. Dry-ice snow actually does reach the ground.

“Enough falls that you could snowshoe across it,” said Sylvain Piqueux, a Mars scientist at NASA’s Jet Propulsion Laboratory in Southern California whose research includes a variety of winter phenomena. “If you were looking for skiing, though, you’d have to go into a crater or cliffside, where snow could build up on a sloped surface.”

How We Know It Snows

Snow occurs only at the coldest extremes of Mars: at the poles, under cloud cover, and at night. Cameras on orbiting spacecraft can’t see through those clouds, and surface missions can’t survive in the extreme cold. As a result, no images of falling snow have ever been captured. But scientists know it happens, thanks to a few special science



The HiRISE camera aboard NASA's Mars Reconnaissance Orbiter captured these images of sand dunes covered by frost just after winter solstice. The frost here is a mixture of carbon dioxide (dry) ice and water ice and will disappear in a few months when spring arrives. Credit: NASA/JPL-Caltech/University of Arizona Full Image Details

Winter Wonderland, continued.

instruments.

NASA's Mars Reconnaissance Orbiter can peer through cloud cover using its Mars Climate Sounder instrument, which detects light in wavelengths imperceptible to the human eye. That ability has allowed scientists to detect carbon dioxide snow falling to the ground. And in 2008, NASA sent the Phoenix lander within 1,000

miles (about 1,600 kilometers) of Mars' north pole, where it used a laser instrument to detect water-ice snow falling to the surface.

Cubic Snowflakes

Because of how water molecules bond together when they freeze, snowflakes on Earth have six sides. The same principle applies to all crystals: The way in which atoms arrange themselves

determines a crystal's shape. In the case of carbon dioxide, molecules in dry ice always bond in forms of four when frozen.

Because carbon dioxide ice has a symmetry of four, we know dry-ice snowflakes would be cube-shaped," Piqueux said. "Thanks to the Mars Climate Sounder, we can tell these snowflakes would be smaller than the width of a human hair."

HiRISE captured this spring scene, when water ice frozen in the soil had split the ground into polygons. Translucent carbon dioxide ice allows sunlight to shine through and heat gases that escape through vents, releasing fans of darker material onto the surface (shown as blue in this enhanced-color image). Credit: NASA/JPL-Caltech/University of Arizona



Jack Frost Nipping at Your Rover

Water and carbon dioxide can each form frost on Mars, and both types of frost appear far more widely across the planet than snow does. The Viking landers saw water frost when they studied Mars in the 1970s, while NASA's Odyssey orbiter has observed frost forming and sublimating away in the morning Sun.

Winter's Wondrous End

Perhaps the most fabulous discovery comes at the end of winter, when all the ice that built up begins to "thaw" and sublimate into the atmosphere. As it does so, this ice takes on bizarre and beautiful shapes that have reminded scientists of spiders, Dalmatian spots, fried eggs, and Swiss cheese.

This "thawing" also causes geysers to erupt: Translucent ice allows sunlight to heat up gas underneath it, and that gas eventually bursts out, sending fans of dust onto the surface. Scientists have actually begun to study these fans as a way to learn more about which way Martian winds are blowing.



The HiRISE camera captured this image of the edge of a crater in the middle of winter. The south-facing slope of the crater, which receives less sunlight, has formed patchy, bright frost, seen in blue in this enhanced-color image. Credit: NASA/JPL-Caltech/University of Arizona

From the Archives

March, 2003

The new photovoltaic (PV) system was recently installed by Jon Dixon of Dixon Power Systems. The solar panels began generating electricity at 2:02 PM CST on Thursday, March 13th, 2003. It is estimated that the PV system will produce about half of Hyde Observatory's annual electrical needs. Future plans call for developing a web site that can be used to display the performance of the PV system. It will provide an excellent opportunity to compare and contrast how different sun angles and sky conditions affect the amount of electricity generated.



Jon Dixon connects PV system to grid

Hyde Observatory Has a New Set of Solar Panels on its Roof - Erik Hubl

The PV system replaces an older, passive solar heating system that had begun to deteriorate after 25 years of service. Unlike the old system, which just generated heat energy, the new PV system will generate electricity to power the observatory and will feed any excess or unused electricity into Lincoln's grid.

The panels are designed to withstand the impact of a one-inch hailstone and carry a 20-year warranty. Lincoln Electric System funded the system as a demonstration project. Additional project partners include

Information Analytics who is installing the computers and web interface, and Alltel who has agreed to provide a DSL service to the observatory.

A dedication ceremony is being planned for later this spring.



Erik Hubl records power output



CLUB 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

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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.

