

# The Prairie Astronomer

May 2020 Volume 61, Issue #5



**May Meeting  
Guest Speaker:  
Dr. Ken Murphy,  
Southwestern  
Minnesota State  
University**

*Europa's 'Chaos Terrain'*



**Night Sky Network**



The Newsletter of the Prairie Astronomy Club

# The Prairie Astronomer

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Next Meeting: May 26, 7:30pm via Zoom

Dr. Ken Murphy from Southwestern Minnesota State University will take us on a guided tour of the Universe using OpenSpace. OpenSpace pulls in from all sorts of databases to let you look at everything from the Earth using current satellite data to various sky and galactic surveys. The Zoom meeting link will be emailed to club members.



## FUTURE PROGRAMS

June - Solar Star Party (tentative)  
July - Review of the Nebraska Star Party  
October - Club Viewing Night  
November - How to Buy a Telescope  
December - Holiday Gathering for club members

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Cover Photo:

*The surface of Jupiter's moon Europa features a widely varied landscape, including ridges, bands, small rounded domes and disrupted spaces that geologists call "chaos terrain." Three newly reprocessed images, taken by NASA's Galileo spacecraft in the late 1990s, reveal details in diverse surface features on Europa.*

[READ MORE](#)



**Buy the book! The Prairie Astronomy Club: Fifty Years of Amateur Astronomy.**

Order online from [Amazon](#) or [lulu.com](#).

# EVENTS

PAC Meeting  
Tuesday May 26, 2020

PAC Meeting  
Tuesday June 30, 2020, 6pm  
Solar Star Party (tentative)

July 19-24 Nebraska Star Party

PAC Meeting  
Tuesday July 28, 2020, 7:30pm



## PAC E-MAIL:

[info@prairieastronomyclub.org](mailto:info@prairieastronomyclub.org)

## PAC-LIST:

Subscribe through [GoogleGroups](#).  
To post messages to the list, send  
to the address:

[pac-list@googlegroups.com](mailto:pac-list@googlegroups.com)

## ADDRESS

The Prairie Astronomer  
c/o The Prairie Astronomy Club, Inc.  
P.O. Box 5585  
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## WEBSITES

[www.prairieastronomyclub.org](http://www.prairieastronomyclub.org)  
<https://nightsky.jpl.nasa.gov>  
[www.hydeobservatory.info](http://www.hydeobservatory.info)  
[www.nebraskastarparty.org](http://www.nebraskastarparty.org)  
[www.OmahaAstro.com](http://www.OmahaAstro.com)  
[Panhandleastronomyclub.com](http://Panhandleastronomyclub.com)  
[www.universetoday.com/](http://www.universetoday.com/)  
[www.planetary.org/home/](http://www.planetary.org/home/)  
<http://www.darksky.org/>

## 2020 STAR PARTY DATES



Photo by Brian Sivill

	Star Party Date	Star Party Date
January	Jan 17	<b>Jan 24</b>
February	Feb 14	<b>Feb 21</b>
March	Mar 13	<b>Mar 20</b>
April	Apr 17	<b>Apr 24</b>
May	May-15	<b>May 22</b>
June	Jun 12	<b>Jun 19</b>
July	Jul 10	<b>Jul 17</b>
NSP	<b>July 19 - 24</b>	
August	Aug 14	<b>Aug 21</b>
September	Sep 11	<b>Sep 18</b>
October	Oct 9	<b>Oct 16</b>
November	Nov 6	<b>Nov 13</b>
December	<b>Dec 11</b>	Dec 27

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



**Night Sky Network**

## April Meeting Minutes

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PAC meeting minutes April 28, 2020 as recorded by Bill Lohrberg

*Due to the restrictions for public gatherings during the pandemic, President Bob Kacvinsky hosted this PAC meeting from home via Zoom. This being the first attempt as such it went very well with at least 27 attendees, including a few "at large" members – Jack Dunn and Larry Stepp. Jack suggested we could consider doing a joint PAC-OAS Zoom meeting in the future and this idea was well received by those in attendance.*

After a few introductions and settling into the Zoom meeting format, Bob began at approximately 7:35 pm with a short agenda, foregoing the observing report to allow time at the end for Jim Kvasnicka's program on comets.

### In the news

- Mars Perseverance rover got its wheels and is set to be launched late July to early August.
- A few comets are visible in the northern sky – Atlas and Panstarrs/T2. Bob mentioned that he, Jim Kvasnicka and Dan Delzell enjoyed observing both recently. Atlas expecting to brighten through May – closest to earth May 23 and reaches perihelion May 31.

### Upcoming Events/cancellation of events

- Hyde on hold until further notice
- Plan to do the club star parties in May with social distancing

measures – watch for notices on Night Sky Network

- Many event cancellations including June's Fremont Muscular Distrophy camp, MSRAL in Oklahoma postponed to 2021, Sangre Star Festival in Colorado cancelled, Hillcrest golf course event cancelled.
- Hoping to continue in June with club star parties
- July NSP is still on but likely with some restrictions and changes...watch for announcement approximately 1 month prior

### Treasurer's report John Reinert

- A review of account balances was given – no changes
- Club audit has yet to be done –given the current circumstances poses a challenge to do this.
- John is in process of completing forms to fill out relating to taxes collected from sale of silent auction items.
- Motion to approve the annual funding for maintenance of Cortland observing site was initiated, seconded, and carried with none opposed.
- Reminder to check your spam folder for renewal notices

### Other Business

Bob thanked the volunteers for their patience under these unusual circumstances. Mentioned getting back to full operation will be like turning on a lamp gradually with a dimmer rather than a switch to "full on"

Ron Veys shared how Hyde board has been discussing a gradual reopening of the Hyde observatory by establishing temporary procedures and guidelines. Preliminary plan ideas suggested by Lee Thomas include; possibility that Hyde may only open every other weekend to start, no programs would be shown in the lecture room, masks to be worn by all entering the building, one volunteer on the deck, those who have underlying conditions or who are over a certain age not recommended to volunteer or supervise, etc. Lee added that any of these are subject to approval by Lincoln Parks and Rec.

Going back to the subject of current events, Ron Veys wondered if anyone else had seen the Space X "string of pearls satellites" that he and his daughter observed – counted 24 all in a row. Reminded everyone to check web site "heavens above" to find out when to catch views. Brett Boller commented there may not be very many good passes left, Jack Dunn mentioned someone who was in a recent zoom meeting was able to get a good photo and offered to share this with anyone interested.

With no further business, the meeting adjourned at approximately 7:58pm to the program presentation by Jim Kvasnicka on comets.

## The President's Message

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Bob Kacvinsky

Welcome to warmer days and the opportunity to get out and observe the sky with family and friends – but only at a safe social distance. We have been in a rollercoaster of activity / nonactivity in our personal lives and that has been the same for the Prairie Astronomy Club. Most of our club public events have been canceled through at least the end of June.

On a high note, our April Club meeting was held via Zoom and we had 28 members (45% of membership) participate including a few friends that have moved out of Lincoln. It was great to see everyone and get caught up. Jim Kvasnicka presented the program on history and sources of comets including photos and a review of his infamous sketches. Everyone really enjoy the great program.

Based on the success of the April virtual meeting, **we will again host a virtual Zoom PAC meeting on Tuesday May 26<sup>th</sup> starting at 7:30 PM.** Jack Dunn has offered to help us find a speaker that will be announced on the invitation reminder. I will send out a message through the Night Sky Network to all members the weekend before with Zoom code number and further details. Watch your emails.

Our May 15<sup>th</sup> star party looked like it might be clear for a while but the Clear Sky Clock was correct and seeing and transparency went bad at dark. At 10 pm in Lincoln only a few bright stars could be seen through the clouds. It felt like NSP '19 all over again.

We are all hoping for a clear night for the May 22<sup>nd</sup> club star party at "The Farm" SE of Cortland, NE. The comet PanStaar T2 should be passing by M81 / M82 in Ursa Major over the weekend making a great multiple view if your FOV is wide enough. At least it should make finding the comet easier even in a small telescope. T2 should be at magnitude around 8.7 which makes it visible potentially even in binoculars. A couple of weeks ago a small group were able to easily observe the comet at The Farm. Time to dust off your telescope, clean your lenses, and come out to enjoy some viewing and start your Comet Observing Program.

If you need directions to the PAC Observing site members can either drop me or Observing Chair Jim Kvasnicka a note and we can send you directions.

The Nebraska Star Party is scheduled for July 19-24 at Merritt Reservoir near Valentine, NE. The NSP Board is

scheduled to meet in early June to determine if NSP can be safely operated this year.



Early registration discount runs till July 1<sup>st</sup> so you should know details for attending in time to still capture the discounted registration.

Our June PAC meeting is scheduled to be our annual Solar Observing night on the lawn at Hyde Observatory. Right now, the City of Lincoln is opening some parks and not others through the end of June. We will have to wait till closer to mid-June to determine if we can open Hyde for a meeting and if observing is possible. So....we will continue with the 2020 theme of "Stay Tuned".

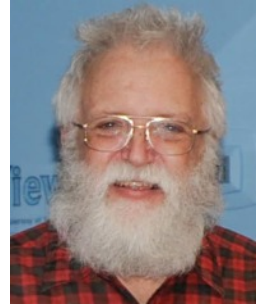
Wishing you all a safe and healthy month.

Dark Clear Skies to you,

Bob Kacvinsky

PAC - President

*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](http://www.mantrapskies.com).*

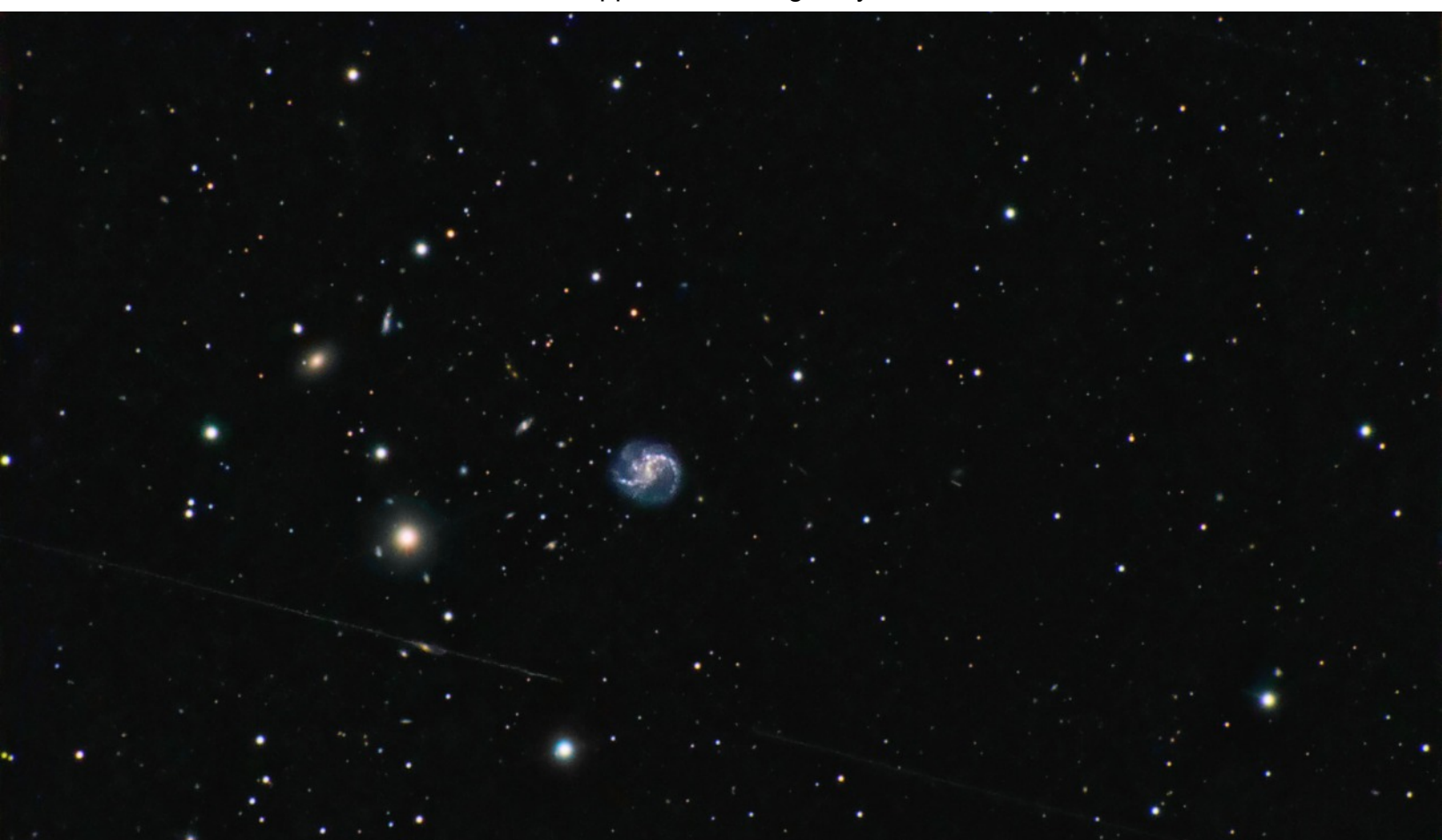


Arp 19/NGC 145 falls under Arp's category of 3 armed spiral galaxies. It is about 175 million light-years away in the constellation of Cetus. NED classes it SB(s)dm. I'm not so sure I agree with the 3 arm bit. Two are obvious with the third looking like it is detached from the bar the other two come from. In fact, there seems to be a fourth shorter "arm" as well starting from a very bright knot to the west of the third "arm". Both have a faint curving outer arc. What caused this is the mystery to me. Checking literature turned up no real mention of a third or fourth arm.

Most references read something like this one: "Small, bright bar with no definite nucleus. 2 strong knotty arms with some branching, one stronger and longer, forming an incomplete loop." I don't quite agree with the "no definite nucleus" part. Looks to me to be one. It's quite a bit more orange than any other part of the bar and seems the rotation point of the galaxy as well. Maybe they didn't have the benefit of a color image. It was discovered by John Herschel on October 9, 1828.

While there are a ton of other galaxies in the image, including what appears to be a galaxy

cluster just to the east of Arp 19 I found little on them and no hint of a mention of a galaxy cluster. This field is out of the SDSS area. Many of the galaxies are in the British anonymous catalog but with little useful information. In fact, only two other galaxies have redshift data available. The odd apparently double cored galaxy to the northeast of Arp 19 is LCSB S0087P (LCSB=Low Central Surface Brightness) at 336 million light years. Apparently, that dim line through the core is why it is in the



catalog. Otherwise, its core sure doesn't appear to be of low brightness to me. I don't find anything on it or what is behind its odd appearance. There's another galaxy with a possible double core about the same distance from Arp 19 but to the southeast. It is 2MASX J00315490-0510555. I have no distance data on it. It probably is two unrelated galaxies, one a small elliptical, that are along the same line of sight.

The only other galaxy with redshift data I could find is the large bright, very orange, elliptical galaxy PGC 001962 at magnitude 15. Its redshift indicates a distance of about 334 million light-years. Essentially the same as LCSB S0087P. They are likely related. The very blue galaxy northwest of it is 2MASX J00321025-0505417. Just to the right of it is

a very blue nearly round galaxy APMUKS(BJ) B002936.06-052218.5. Yeah, one of the many anonymous ones in the image. The galaxy speared by the satellite trail southeast of Arp 19 is 2MASX J00320683-0513177. The trail has a gap in it due to it being on two frames. The gap is the time it took to download one frame and start the next.

There happened to be 4 asteroid trails in the image. Three are easy to find in a triangle to the west of Arp 19. The one to the northwest near the only bright star in the area (northeast a bit from the star) is (95329) 2002 CQ11 with an estimated magnitude of 19.2. Below that bright star almost due east of Arp 19 is a very dim and small orange galaxy. Just west of it is (109137) 2001 QO54 at magnitude 19.6.

Continuing due west to a larger brighter but still faint smudge of a blue galaxy bring you to (112051) 2002 JL9 just below the galaxy. It is the brightest in the image at magnitude 18.7 The 4th, also moving in the same downward angle with a similar length trail is the faintest and hardest to find. Go back to the previous asteroid by the faint star and go just below the asteroid trail to an orange star. Down and right of it is a rather white star. Go down from that star and very slightly right, Near the bottom of the image is the faint trail of 2005 WC36 at magnitude 20.0.

Arp's image

[http://ned.ipac.caltech.edu/level5/Arp/Figures/big\\_arp19.jpeg](http://ned.ipac.caltech.edu/level5/Arp/Figures/big_arp19.jpeg)



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

### Planets

**Mercury:** Sets about 1 hour and 45 minutes after the Sun.

**Jupiter and Saturn:** Both rise about an hour before midnight to start June and by months end they will rise about an hour after sunset.

**Mars:** Rises just before 1:45 am to start June.

**Uranus and Neptune:** Neptune is just 1.6° northwest of Mars. Uranus rises two hours later than Neptune but is two magnitudes brighter.

**Venus:** Rises about 45 minutes before the Sun at magnitude -4.1.

### 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 4565:** The Needle Galaxy in Coma Berenices.

**NGC 4725:** Bright oval shaped galaxy in Coma Berenices.

**NGC 5248:** Oval shaped galaxy in Bootes.

**NGC 5676:** Oval shaped galaxy in Bootes.

**NGC 5689:** Elongated galaxy in Bootes.

### 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 5595 and NGC 5597:** Two faint oval shaped galaxies in Libra that fit in the same FOV.





### Open Cluster Observing Program

Open clusters come in a variety of sizes, star numbers, concentrations, and textures. Some open clusters such as M11 in Scutum are nearly as populous and concentrated as Class XI and XII globular clusters. Others are little more than an enhancement of the background star field.

Open clusters can be found in almost every direction of the sky. Certain directions in the Milky Way are especially rich in open clusters, specifically towards Cassiopeia, Monoceros, and Puppis. These are relatively dust free windows in which we can see thousands of light years along the plane of our Milky Way.

Open clusters are not as old as globular clusters. The oldest known open clusters in our Milky Way are only about half as old

as the youngest globular clusters.

Open clusters are classified using the Trumpler Classification, which is a three part code using concentration, range of brightness, and the degree of richness. You will see it listed as Tr Type.

### Trumpler Classification

#### **Concentration**

- I. Detached, strong concentration toward the center.
- II. Detached, weak concentration.
- III. Detached, no concentration.
- IV. Not well detached from surrounding stars.

#### **Range in Brightness**

1. Small range in brightness.
2. Moderate range in brightness.

3. Large range in brightness.

#### **Richness**

- p – Poor, less than 50 stars.  
m – Moderate, 50 – 100 stars.  
r – Rich, more than 100 stars.  
n – Nebulosity is associated with the cluster.

You would combine the three classification codes for the Tr Type. Example: M41 in Canis Major - Tr Type II 3 m

Once you complete the Open Cluster Observing Program you will need to submit your observing logs to me for review. I will contact the Open Cluster Observing Program chair for approval. Once I receive your certificate and pin I will present them to you at the next PAC meeting.

Ron Veys recently restored Earl Moser's first telescope to like new condition. Earl was a member of PAC for many years. Marj Moser is shown here with the telescope.

You can see it briefly in this 1962 video in front of Love Library at UNL.  
<https://use.vg/U0NKNv>





Jason  
O'Flaherty

*"The best accidental photo I've ever taken!"*

*By Jason O'Flaherty*

*Camera: Fujifilm X-T3*

*Lens: XF16mm2.8 R WR*

*16mm f/2.8 15.0 sec ISO 6400*

*Jason also made a very nice time lapse of the Lyrid meteor shower: <https://youtu.be/YKE4rqd4uJo>*

*Read more on his blog site: <https://flarecorpmedia.com/feed/2020/5/13/lyrid-meteor-shower>*



*Kat Williams (Bill Lohrberg's daughter) took this nice photo of the Moon and Venus with her iPhone 11 while walking her dog in Woods park on April 25.*

A few months ago I started checking the [ISS transit finder](#), hoping to get some images of solar or lunar transits. Unfortunately almost every transit within 50 miles was clouded out. On May 3 there was a solar transit at 9:30am that traversed from north of Grand Island to Pawnee City, so I drove down to the centerline just east of Hwy 77 and two miles south of Pickrell. The sky was clear until exactly one minute before the transit, when small cloud got in the way. My next attempt was on May 6<sup>th</sup> at 7:06am, a few miles east of Pickrell. Same story - the sky mostly cleared up by the time I got to Pickrell, and I narrowly avoided another cloud by driving further east.

The problem with photographing solar transits is that there's nothing to focus on except the limb of

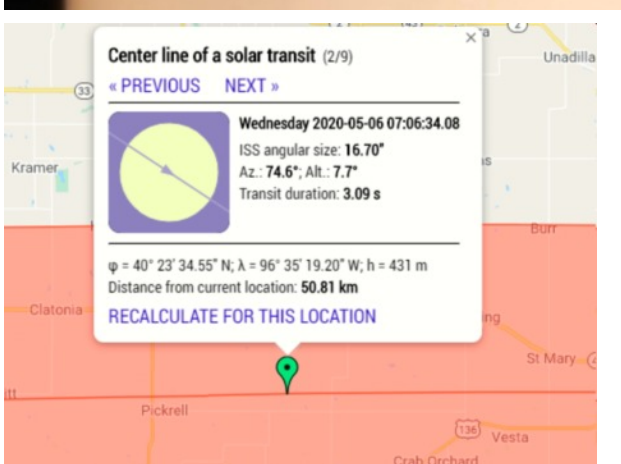
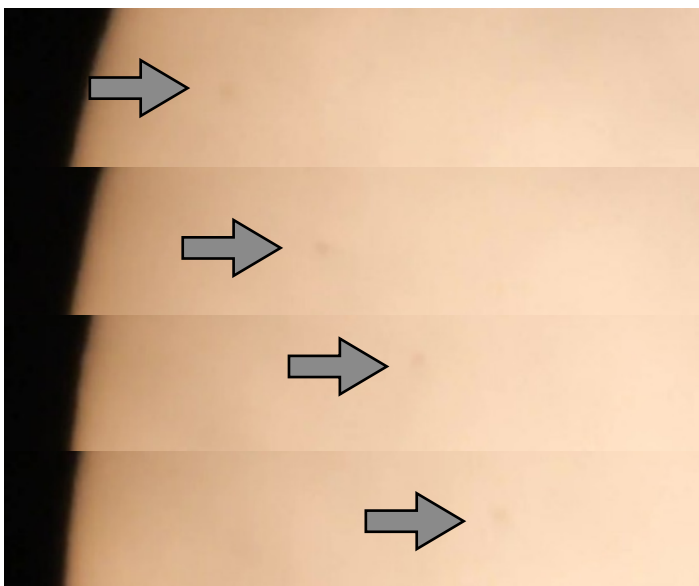
the sun, which isn't very precise. Sunspots would be helpful... so all I got was a fuzzy blob.

My first attempt was a mixed success. I knew that I couldn't trigger the shutter fast enough to catch a 3 second transit, so I shot it as 4K video at 60 fps. I used my Celestron Onyx refractor with a 2X barlow and T-adapter for my Panasonic Lumix G9 camera. I never did see the transit when it happened... I had to slowly step through each video frame to find the faint out-of-focus shadow, and then adjusted contrast as much as possible to enhance it.

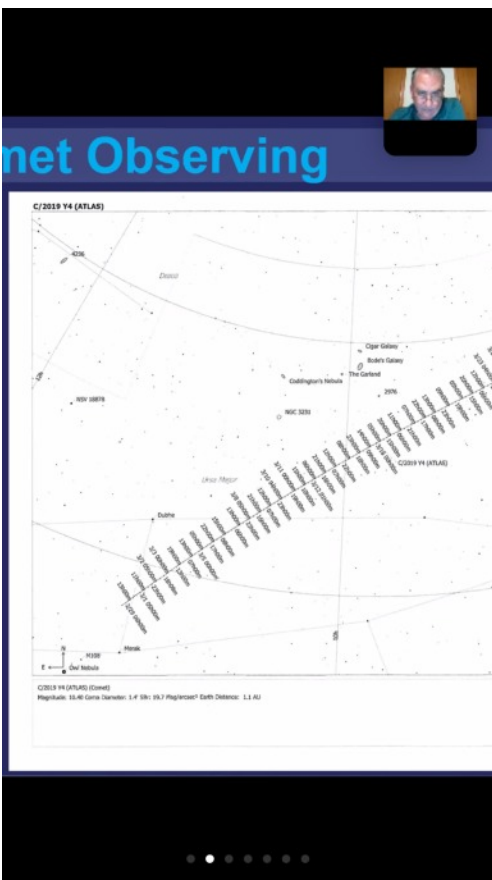
I set my phone's alarm for one minute before the transit and started recording several minutes before that. Then I was able to use the alarm sound as a marker in the video to scan forward 1 minute and 6 seconds, to find the start of the transit.

I was surprised at how accurate the transit predictions are. ISS popped into view almost to the second of the predicted time.

It will take more practice to get it right... lunar transits might be better because it'll be easier to get a sharp focus.



## A First for PAC: A Virtual Club Meeting using Zoom



Our April meeting was held using Zoom with 27 attendees. Jim Kvasnicka presented his program on Comet Observing. Bob Kacvinsky showed the photo above, which is a time lapse of Starlink satellites.

## ***From the Archives: June, 1984***

It is rapidly approaching the time for the Prairie Astronomy Clubs annual Star Party and Picnic and thunderstorm. Because of the latter we have started something different this year. This year we will have a primary date and a secondary date. If the primary date is overcast or rain we will then meet on the secondary date. If the primary date looks "iffy" then our call tree will be implemented. This way our members will know of the status of the get together.

As in the past, you bring your own pot luck food. Furnish your drink. Be there at 6:00 PM, we eat at 6:30. Talk until dusk and observe the rest of the night. The location is Wagon Train Lake, east of Hickman Ne. Contact a club officer for directions. You will need a state park sticker that can be picked up at a number of sporting goods stores.

Our primary date is July 28th and our secondary date is August 25th. Lets have a good turnout and stay tune to Tom Dunkley weather reports.

The Prairie Astronomy Computer Users group is slowly forming. We have 15 members signed up as having computers. Our members have computers that range from the Timex/Sinclair 1000 and VIC 20 to the Apple and IBM PC.

We hope this club within a club will help the entire club ease into high tech amateur astronomy.



*This 2018 false-color composite of the Crab Nebula was made with data from the Chandra X-Ray Observatory, Hubble Space Telescope and Spitzer Space Telescope. [READ MORE HERE.](#)*

# 27th Nebraska Star Party - July 19-24



Mark Dahmke

Photo Credit: Fred Hultstrand History in Pictures Collection, NDSU, Fargo, N.D.

Join us this summer as families from all over the US and around the world gather in the sparsely populated sand hills of North Central Nebraska to spend a good week under a galaxy of stars.

## NSP Schedule of Events

Sunday: registration and check-in, optional dinner.

Monday: registration and check-in, field school, optional dinner.

Tuesday: registration and check-in, swap meet, field school, free “Cattle Country” hamburger dinner.

Wednesday: (All at Valentine High School) field school, registration, swap meet, speaker program, children’s program, dinner on your own.

Thursday: Brewer’s Niobrara Canoe or tube float, optional dinner.

Friday: public star party at 9pm.

For more information see the [NSP website](#).

**Register online or at NSP!**

## 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

## CLUB APPAREL



Order club apparel from [cafepress.com](http://cafepress.com):



Shop through Amazon Smile to automatically donate to PAC:



## CLUB OFFICERS

President	Bob Kacvinsky <a href="mailto:kacvinskyb@yahoo.com">kacvinskyb@yahoo.com</a>
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Secretary	Bill Lohrberg <a href="mailto:wmlohrberg89@gmail.com">wmlohrberg89@gmail.com</a>
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