

# REFLECTIONS / REFRACTIONS

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University Lowbrow Astronomers Monthly Newsletter

July & August, 2024, Vol 48, Issue 7 & 8

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Iris Nebula NGC7023 - Sep 7, 2021  
Awni Hafedh



## NGC 7023 IRIS NEBULA

BY AWNI HAFEDH

This is a re-process of data captured during the 2021 Great Lakes Star Gaze

# Upcoming Meetings, Events, and Open Houses

## UPCOMING CLUB EVENTS

**Open house:** August 3, 9 p.m.  
**Potluck picnic:** August 16, 6:30 p.m.  
**Open house:** August 31, 8 p.m.

## SPECIAL EVENT

Owosso Airport, August 24, 8 p.m.  
KRNP, 205 Airport Dr, Owosso, MI 48867, USA Annual camping event for pilots and their families

## UPCOMING MEETING SPEAKER SCHEDULE

**July 19:** Miles Mercier, EMU grad (also Norb Vance) Meeting at Sherzer Observatory (see information at right)  
Topic: **TBA, about radio astronomy and primordial hydrogen**

**August 16:** Club Picnic (Location TBD)

**September 20:** Club meeting cancelled for Astronomy at the Beach (AATB)

**October 18:** Club members Ed Hernandez, Adrian Bradley, and Doug Nelle

Topic: **Memories of the Eclipse**

**November 15:** Dragan Huterer

Topic: **TBA**

**December 20:** Gary Nichols

Topic: **How Smart Are They? A Comparison of the New Breed of All in One Smart Telescopes**

## Friday, July 19 Monthly Lowbrow Meeting

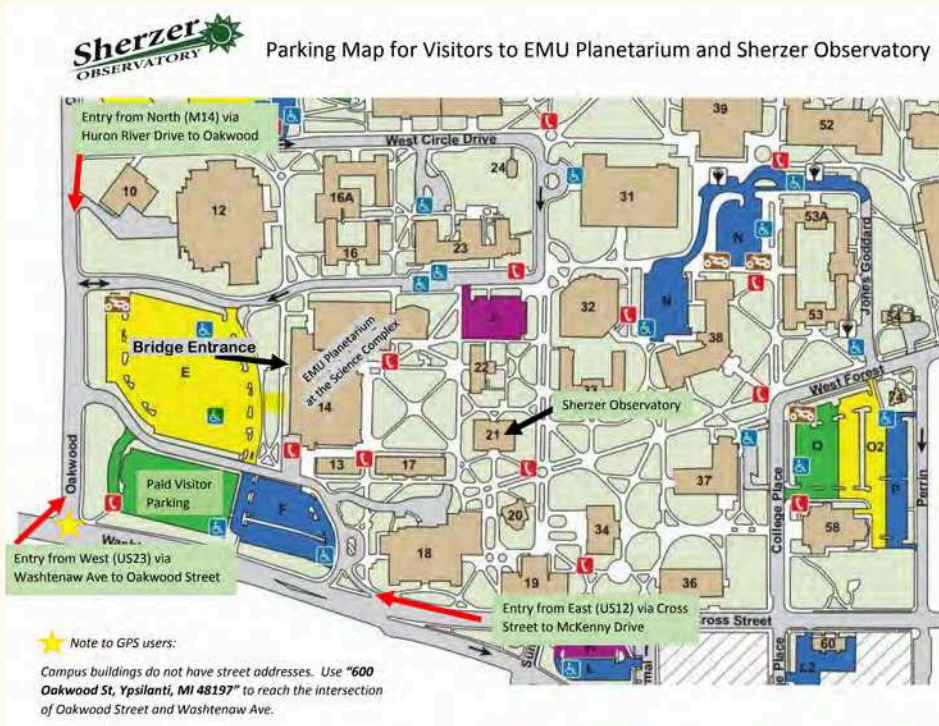
**Location:** EMU Sherzer Observatory

**Time:** 7:30 pm

Come hear about "Norbert and Brian's Excellent Adventure". Lowbrows Norbert Vance and Brian Ottum recently spent seven nights at Cerro Tololo Inter-American Observatory, Chile, working with the U of M Curtis-Schmidt telescope. Despite sitting dormant for seven years, the telescope started up and ran. Come see beautiful photos of the southern sky and hear fascinating stories of their adventure!

The July meeting has become a tradition to avoid the art fair traffic and parking dilemma and to enjoy use of the planetarium and observatory along with some pizza and pop. We'll have some great photos of the observatory complex, the mountain scenes of the Andes, and the spectacular southern skies.

The Sphere is located on the 4th floor of the Mark Jefferson Science Complex, parking and building location on the attached map. Park in the McKenny Guest Lot marked "paid visitor parking" on the SW corner of the EMU campus. It's a short walk to the bridge entrance. The pizza is served at 7 pm, the meeting starts at 7:30 p.m. (See the map below for parking options.)



**AUGUST 16 CLUB POTLUCK:  
Details page 3**



## **AUGUST 16: LOWBROW POTLUCK PICNIC!**

The August Lowbrow meeting will be a potluck picnic held at the property of Kurt & Kathy Hillig at 7654 W. Ellsworth Road, Lodi Township. There will be a sign-up sheet (Jeff Kopmanis will send the link) so we'll know how many to prepare for. We'll start at 6:30, so there will be plenty of time to eat before it gets dark. If there are clear skies, bring your telescope(s) and set up on our lawn.

Kurt has mowed part of the field for parking. You can drive up to the house on the upper loop to drop off your food (and telescope), and then go park. If you back in, then it's easy to drive out and not have your headlights shining on those who want to observe on the front lawn. one note of caution: it's a long driveway and we share it with two neighbors, so be careful of other vehicles arriving or leaving.

### **Hilligs provide:**

- Plates, utensils, napkins, glasses/cups/mugs
- Beverages: water, ice tea, lemonade, decaf coffee
- One casserole - probably baked beans
- Maybe one other dish or dessert depending on what others are bringing

### **Guests to bring:**

- One dish to share - can be anything (main, side, salad, dessert, etc.)
- (optional) If no one is bringing a meat dish to share, then you can bring your own meat, precooked or you can grill it here (warning: our grill is old).
- (optional) Additional beverages, if you want more than what we're providing (ex: pop, wine, beer)
- (optional) Telescopes if skies are clear, or just stay and observe through other's equipment.

Contact Kathy Hillig ([hilligk@outlook.com](mailto:hilligk@outlook.com)) with any questions.



# CAPTURING AND PROCESSING MILKY WAY PHOTOS

BY ADRIAN BRADLEY

I frequent a Facebook page titled “Single Exposure Milky Way.” This group is a collection of Milky Way photography images captured with a DSLR or mirrorless camera and shared with other members. There are always posts that go something like this:

“Hi I’m new to the group and this is my first ever Milky Way Image! I could use some suggestions on how to improve this image.” And the image tends to look good, showing some part of the galactic core.

My thoughts on these ‘first images’ are:

- They really \*aren’t\* the first image, but the first image they were proud enough to post.
- Or they are first images gathered under the guidance of an instructor.
- Or they are first images, but after doing a ton of research online to gather settings, gear, and types of locations to shoot.
- Or maybe they are not first images at all, and they have done this for a while, but are trolling the group with a ‘supposed’ first image in order to get free advice from others on how to make their images ‘next level.’

The answers to ‘how to improve the image’ tend to range from people explaining their own processing workflow to making blind suggestions on settings.

## Well then, how do you do it?

There are many ways to do Milky Way processing. They fall into these general categories, from ‘least amount of equipment needed’ to ‘you’d better have an astrophotography budget ready.’



**f/1.4 - 8 seconds - ISO 8000 - 50mm  
Kenton, Oklahoma - SQM-L average, 21.7**

Taking a single image on a tripod is the easiest and most cost-effective way to gather night sky images.

There’s only one problem, though: What if I’m not in Kenton, Oklahoma? What if I’m in the middle of light pollution from a big city? Because to get reasonable Milky Way detail with a short exposure, it requires a dark enough sky. You can process all you want, even use AI if you have to, but if your sky quality meter reading is less than 21.2, there simply isn’t enough Milky Way light to pull into your camera in such a short exposure time.

Pulling up your ISO can help amplify the starlight and features like dust lanes, but you are still limited in data.

**MILKY WAY PHOTOS continues, p. 5**



**Many Single Images, Stacked and Combined via software.**

Sequator and Starry Landscape Stacker seem to do a very good job in presenting images that represent a more natural look. Milky Way and other deep sky images are enhanced but not to the level where you make the area look as if it was in a much darker setting.

Sequator looks interesting in that it gives you the option of leaving in any meteors/planes/satellites/other streaks, or stacking them out. The result is a nice solid image. However, I had a single image with a meteor streak in it that I wanted to keep and would have lost it if I had taken multiple images and stacked them all using this software.

It does produce cleaner landscapes, with tree lines looking more natural. When you start tracking the night sky, your landscapes begin to get blurry. To overcome those, you have to take an image of the landscape with no tracking, then select the landscape. (Adobe products tend to automatically mask the sky, and then you do an inverse mask.). You also need to lift the landscape above the blurred-out treeline in your final composite photo and see if the results look natural. At right is an example.

**Longer exposure on a sky tracker, combined with a matching ground image to create a composite**

Now it starts to get expensive.

You have to buy a star tracking device, and they tend to run between \$250 and \$500 for the smaller ones. You have to polar align that device and make sure it can track for the length of exposure you want. You have to account for a lot more treeline blur if trees are in your foreground.

But the results can be outstanding. For instance, the Cats Paw and the Lobster Claw Nebulae are visible here. The sky image tends to be a bit sharper and full of more detail



**A stack of 38 images, 24mm, f/2.8, ISO 3200, 10 seconds - Clayton, MI - SQM-L average, 20.9**



**5 min, f/2.8, ISO 400, 35mm - Clayton, MI - SQM-L average, 20.9**

since you exposed your sensor for a longer period. To keep the brightness of your image down with such a long exposure, a lower ISO can be used. But you must find the sweet spot with how much data you pick up because longer exposures at higher ISOs run the risk of blowing out everything ... unless ...

... you are at a dark site with an average SQM-L reading of 21.7. There it is possible to gather a good exposure at a larger ISO such as 1600. Figure out what your sweet spot for ISO is in a particular location. The more light pollution you have, the more likely your sweet spot is a bit lower in ISO.

Lastly, we have ...

**MILKY WAY PHOTOS continues, p. 6**

## MILKY WAY PHOTOS continued

### Longer exposures, tracked and stacked, then add a ground image for a composite

Here we have the best of all worlds. A longer exposure time to stack, then use that as the sky for a longer ground image. The ground images can be stacked as well.

What I like about this image is that the airglow present did not get removed via the stacking process, and all of the elements that were true to the location have been added. Huge Light pollution domes from Port Huron and Detroit, as long as some light pollution from Canada, have been left in this image to show a more realistic picture of how this location looks when facing south on a moonless night, watching the Milky Way core rise.

Longer composite photos also help when imaging other fainter parts of the Milky Way. Remember, there is never a 'start' or an end to Milky Way season. It is year-round. But certain imaging techniques may make it harder to



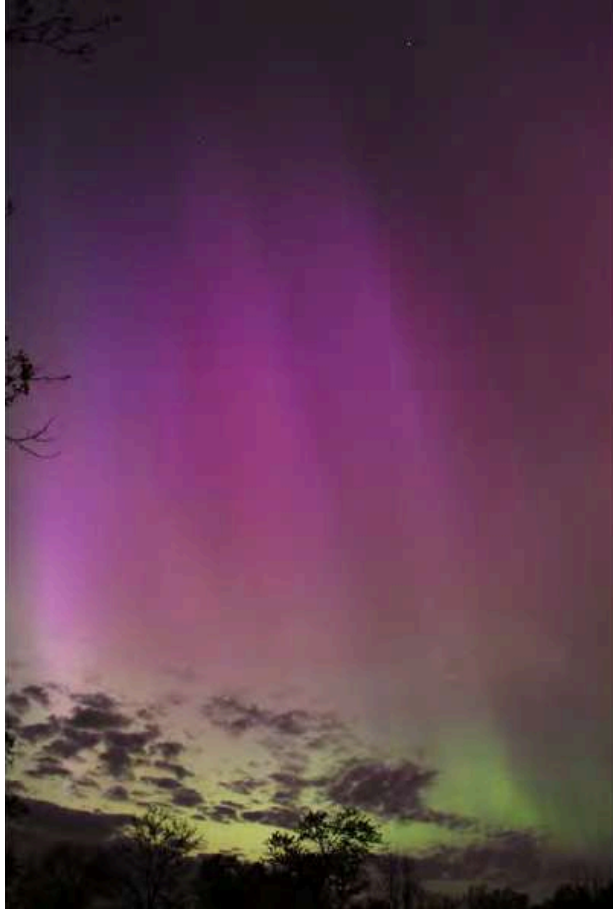
**f/2.8, ISO 1600, 16mm, 4x2min stacked for the sky, 1x2min untracked for the ground. Delaware State Park, Deckerville, MI (in the thumb).**

gather any images whenever the core is not up. That's why many who go by the phrase 'Milky Way Season' tend to image only when the bright galactic core is in the night sky. But if you gain more experience with different methods of imaging, and are willing to travel to some darker places on the planet, you can bring home your very own 'copies' of the night sky to share with others. Pick the right method for your location and time of year and give it a try!



**Perseus Arm.  
f/2.8, 5min for sky, 30 seconds for ground, composite, ISO 800 (sky), ISO 3200 (ground), 16mm - Delaware State Park, Deckerville, MI (in the thumb)**





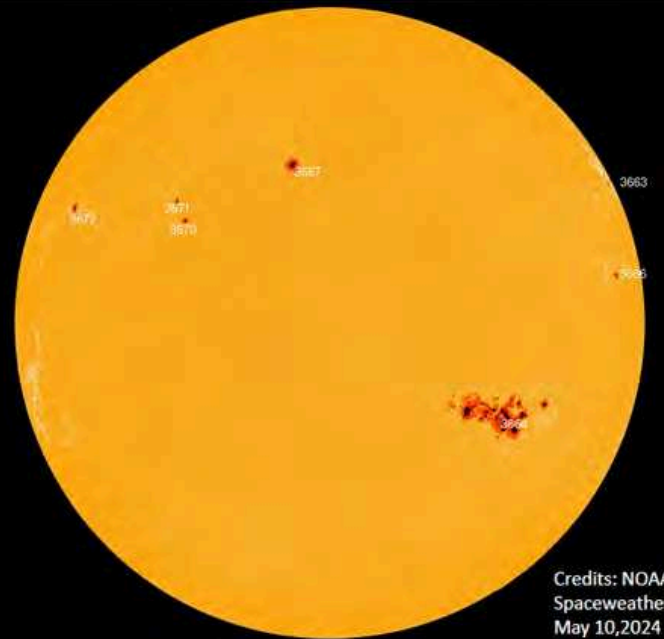
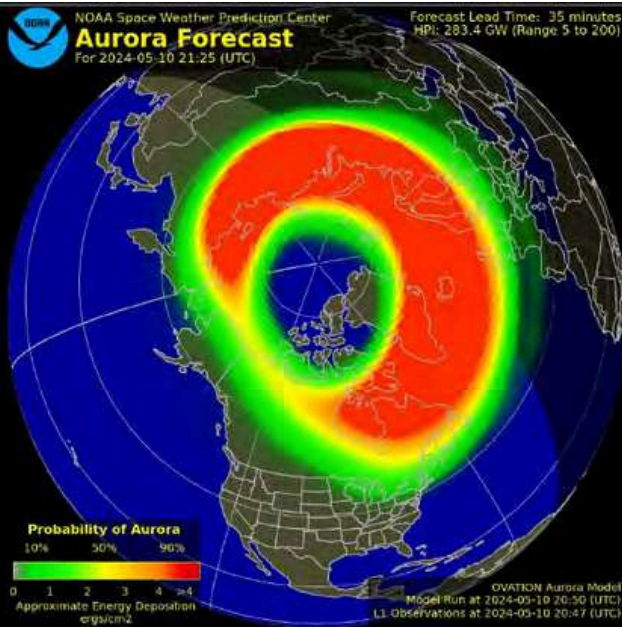
# Aurora Display from the Pinckney Recreation Area near Hell, Michigan

Sunset to 1am EDT Friday, May 10-11, 2024

Norbert Vance and Jack Underwood

*Images by Norbert Vance*

*Text colors selected from the aurora glow*



Credits: NOAA and  
Spaceweather.com  
May 10, 2024

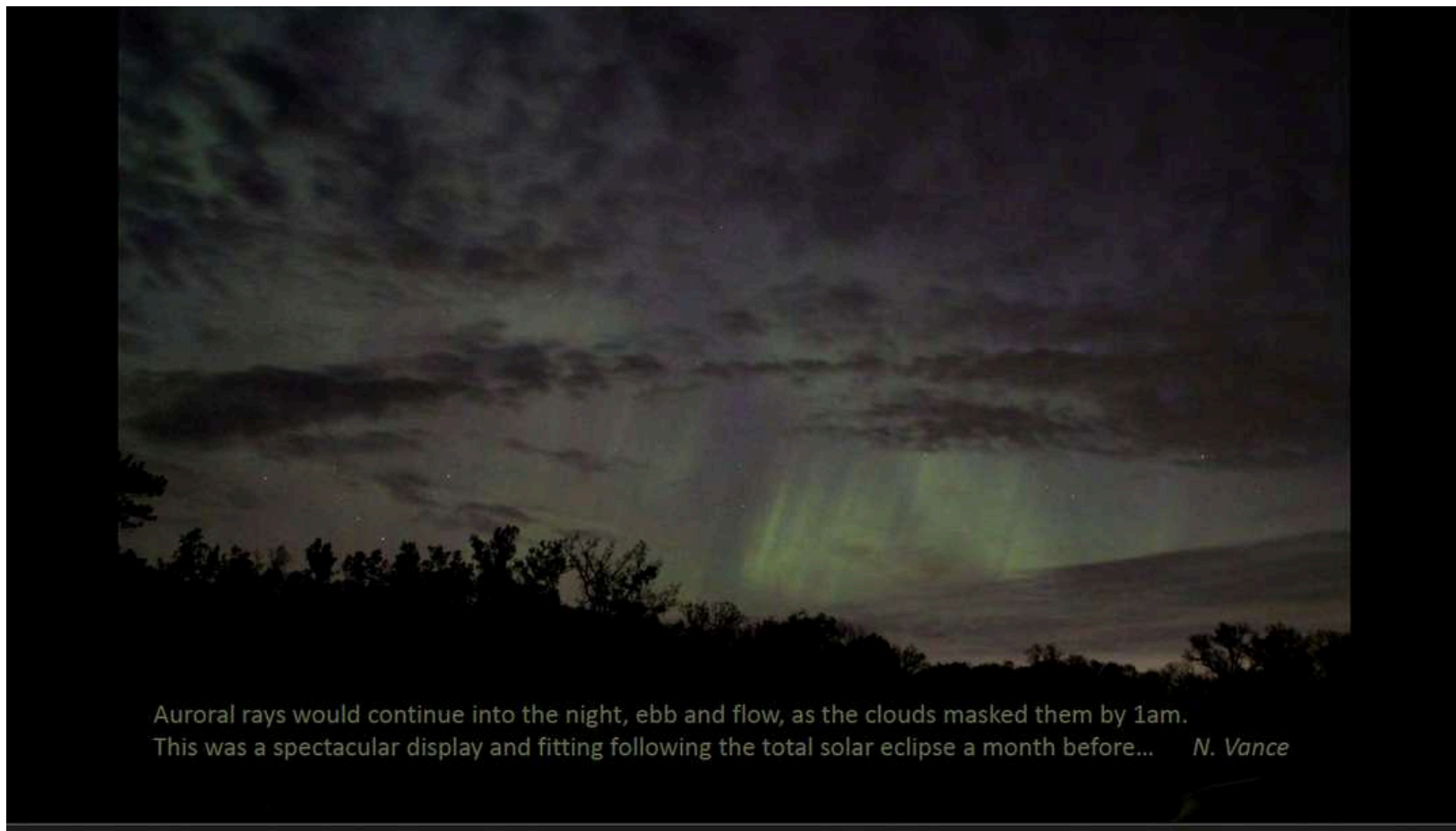
Sunspot group AR3664 had been an impressive group (some 15 Earth diameters across) all week as the Sun rotated it facing us, spewing copious particles our way. But when it lit up the prediction maps on Friday afternoon, we Earthlings had a feeling something big was about to happen. It did, wow! I had not seen the prediction map quite like this in years. In fact, this was the biggest geomagnetic storm to hit Earth in more than two decades. I met with EMU alum and astronomy friend Jack Underwood at his home in Pinckney, MI, where we would drive a short distance to a large canopy opening in the Pinckney Recreation Area west of Hell, MI. So, yes, this was the aurora from Hell! Of the more than 200 photos I took with my stationary Canon DSLR T6 camera and 18mm lens, these were among the best. Exposures were typically 5-12 seconds. A waxing crescent moon graced the western sky where it and the aurora would give way to clouds by 1am. The aurora continued on all night. A few slides show the motion of the ISS during a flyover near the peak brightness of the storm. We could hear cheering in the distance. By chance, Jack and I heard a large tree crack and plunge in the woods not far from us during the aurora. Cause and effect? Nah, that was gravity! © N. Vance

AURORA DISPLAY continues, p. 8



AURORA DISPLAY continues, p. 9





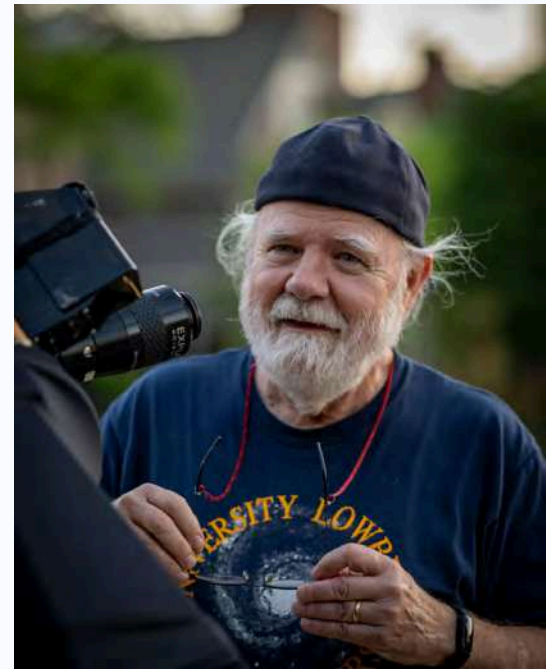
Auroral rays would continue into the night, ebb and flow, as the clouds masked them by 1am. This was a spectacular display and fitting following the total solar eclipse a month before... *N. Vance*

# ‘ON THE MOON’ EVENT, ANN ARBOR DISTRICT LIBRARY, June 14, 2024



**Brian Ottum. Photo by Ginia Forrester**

From Charlie Nielsen, June 15: “Our ‘On the Moon Again 2024’ event at the AADL last night was a huge success. Thank you, Brian Ottum and Amy Cantu for organizing it. Bringing equipment to show the public the Moon were myself, Brian Ottum, Jim Forrester, and Adrian Bradley. The library also had a couple of people with equipment out on the sidewalk. Jim brought his excellent 14" Starmaster Dob, Brian was video projecting using his 7" Mak-Cass, and I brought trusty "Lorna", our club's 3.5" Questar, also a Maksutov-Cassegrain. Mak-Cass telescopes are excellent planetary and lunar scopes. I am not sure what Adrian brought because it seemed like every time I looked in his direction, he had another telescope.



**Jim Forrester. Photo by Ginia Forrester**



**Adrian Bradley with young guest. Photo by Amy Cantu**

The public certainly got to see the Moon through a variety of types and sizes of telescopes. All the while, Avital Keely was answering questions, occasionally helping people with "Lorna", and Amy Cantu and Gina Forrester were photographing the event. I also saw Amy imaging the moon for a while.

We had a wide variety of people of different ages, gender IDs, and ethnic origins come by and take a look. All were pleased and some were pretty blown away. Many hung around for a while and spoke with us. A few people even spoke to us from their cars as they were stopped in traffic. A very successful event with a great group of people, and excellent weather. What more could you ask?"



**The reason we were there. Photo by Rebekah Sloup.**



**Charlie and Avital with guests. Photo by Rebekah Sloup**



# GUESTS ENJOYING 'ON THE MOON' EVENT



Photos above and below by Rebekah Sloup



Photos above and below by Cinia Forrester



Photo at right by Amy Cantu





Photo by Rebekah Sloup

Photos above and upper left by Amy Cantu

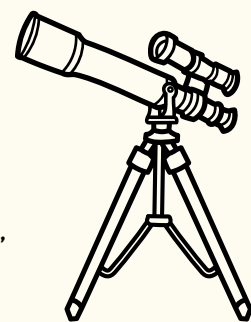
## UPCOMING TOPICS FOR THE OBJECTIVE LENS

BY JACK SPRAGUE

Our Lowbrow photographic roll features images from snapshots, eyepiece imaging, EAA captures, and astrophotography. All images are welcome and while we have a monthly theme, we love any submission.

**September** – A lovely summer interlude following the excitement of galaxy season and then cluster season brings what? Stars and asterisms! September is about stars and asterisms. Feel free to share a sentence or two about why your selection is of interest to you.

**October** – The Summer Milky Way! Let's get those wide-field imaging machines set up and feature star fields and objects of the best show through summer. August is my favorite Milky Way season because I get to visit true Bortle 1 skies in northern Ontario (the Wabakimi Wilderness Park) and the images are astounding. There is something about a dense field of stars and dust streaking the night. Please share yours! ■





## University Lowbrow Astronomers - Meeting Minutes June 21, 2024 7:30pm

Meeting was called to order by Charlie Neilsen at 7:39 PM.

Many members of our club presented their astrophotos of the milkyway, our moon, the planets, and deep sky objects (DSOs). VP Brian Ottum explained he tried astrophotography with film but it took so long to produce results that he quickly gave up. The digital camera allowed him to become an astrophotographer, with the ability to discard poor photos with the push of the "trash can" button. Brian showed a time lapse video of the recent aurora created using photoshop from wide angle still photos. Jeff Kopmanis enjoys the ability to share the wonders of the night sky through astrophotography. Eddie Hernandez showed how one can start with just a DSLR and tripod and still produce interesting photos - or simply "Try it!". Marcus Clarke Jr, a very experienced photographer, needed the lock-down of the pandemic to become an astrophotographer. Dmitri Tsahelnik was visual only, and then pushed the limits of the iPhone in astrophotography. Glenn Kaatz had been dabbling in astrophotography, but the pandemic was the excuse to dive into DSOs and long exposures, with some images taking two years to complete. Ken Leitch imaged planets and didn't even consider DSOs due to terrible local light pollution, but software tools and processing techniques put beautiful DSOs within reach from his driveway.

Our business meeting began at 8:35 PM

Charlie Neilsen nominated Dmitri Tsahelnik for VP. Ken Cook supported the nomination. Dmitri was unanimously elected our fourth VP.

Our club supports Astronomy At The Beach (AATB) with a \$500 donation that requires a vote by those present at the meeting. Ken Cook made a motion to donate \$500 to GLAAC supporting AATB, Doug Warshaw seconded. The motion passed unopposed by voice vote.

Our July 19th meeting will be at Eastern Michigan University in Sherzer Hall courtesy of Norb Vance.

Our August 16th meeting will be a picnic at the Hillig home. Look for an email with more information.

Treasurer Doug Scobel sent a reminder via email: if you are interested in joining or renewing membership in the Astronomical League then you should send the \$9 dues to him before the end of June. Look for a recent email and an upcoming reminder from Doug for details. We have 207 members.

Observatory Director Jack Brisbin continues to search for spare and/or upgraded components for the Argo Navis telescope computer for the McMath. Most of which are no longer being manufactured, nor supported. ServoCat has been relocated to Florida. Most systems are using

bluetooth for handheld devices to connect to the telescope computer, with the WiFi interfaces no longer available.

The lock and door into the McMath observatory has been repeatedly vandalized. Jack spoke with the university, and the lock will be replaced. Jack reminded them that we are authorized key holders and if new keys are required the university will give us copies so we might have access for our open houses and events.

The question was raised about live or recording trail-cams to identify the vandals. The lack of network and cost of cellular service limits the usefulness of live cams. The recording ones require someone to collect the memory card and review the captured video. Another possibility is placing a fake camera to deter future damage.

Newsletter editor Amy Cantu had no report. (Note: I will say on her behalf that you should send in articles and photos for the newsletter and objective lens - Ken Cook)

VP Ken Cook had nothing new to report.

Online Coordinator Jeff Kopmanis relayed that the U of M is not supporting the services that run our old website, and is actively looking to shutdown compromised websites running in the old environment. Jeff has made a local copy of all our old content on his computer and also a USB memory stick.

Jeff had printed information about the digital image processing workshop on July 11th. Please email Jeff if you are interested in attending.

Jim Forrester is still our contact for the Ann Arbor Observer, and gets emails asking to confirm our monthly calendar. This really should be handled by an officer.

Our next meeting is July 19th at Eastern Michigan University, Sherzer hall.

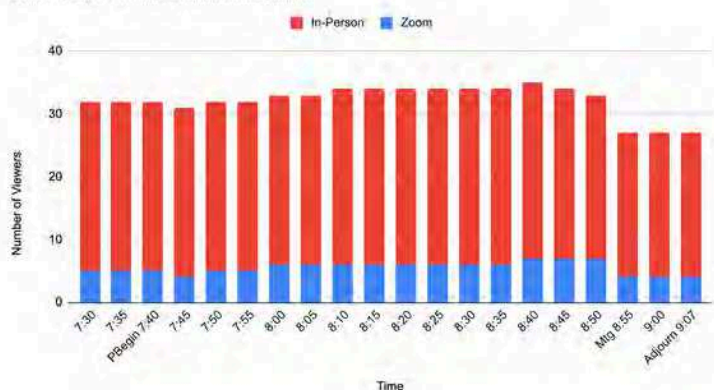
– I didn't see who made the motion to adjourn –

Adjourned at 9:07 pm

Minutes respectfully submitted,  
Ken Cook, VP

Meeting Attendance

June 27, 2021 - 10-Minute Timed Presentations

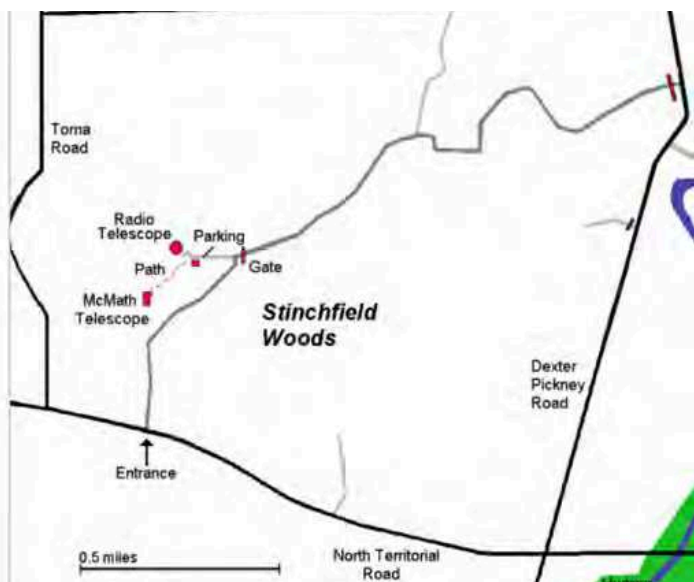




## PLACES & TIMES

Monthly meetings of the University Lowbrow Astronomers are held on the third Friday of each month at 7:30 p.m. The location is usually the Judy & Stanley Frankel Detroit Observatory. The Observatory is located at 1398 E. Ann St., Ann Arbor. The Ann Street Parking Structure (M86), the Catherine Street Structure (M5), the Glen Street Structure (M61), and the School of Public Health II Lot are usually open after 6:00 p.m. Mon-Fri. The M86 structure is closest to the Detroit Observatory.

Peach Mountain Observatory is the home of the University of Michigan's 25-meter radio telescope and McMath 24" telescope, which is maintained and operated by the Lowbrows. The entrance is addressed at 10280 North Territorial Road, Dexter MI, which is 1.1 miles west of Dexter-Pinckney Rd. A maize and blue sign marks the gate. Follow the gravel road to the top of the hill to a parking area south of the radiotelescope, then walk about 100 yards along the path west of the fence to reach the McMath Observatory.



## PUBLIC OPEN HOUSE / STAR PARTIES

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mt. Observatory but are usually canceled if the forecast is for clouds or temperatures below 10 degrees F. For the most up-to-date info on the Open House / Star Party status call: (734) 975-3248 after 4 pm. Many members bring their telescope to share with the public and visitors are welcome to do the same. Mosquitoes can be numerous, so be prepared with bug repellent. Evenings can be cold so dress accordingly.

Lowbrow's Home Page  
<http://www.umich.edu/~lowbrows/>

## MEMBERSHIP

Annual dues are \$30 for individuals and families, or \$20 for full time students and seniors age 55+. If you live outside of Michigan's Lower Peninsula then dues are just \$5.00. Membership lets you access our monthly newsletter online and use the 24" McMath telescope (after some training). Dues can be paid by PayPal or by mailing a check. For details about joining the Lowbrows, contact the club treasurer at: [lowbrowdoug@gmail.com](mailto:lowbrowdoug@gmail.com)

Lowbrow members can obtain a discount on these magazine subscriptions:

**Sky & Telescope** - \$43.95/year

**Astronomy** - \$34.00/year, \$60.00/2 years or \$83.00/3 years

### Newsletter Contributions:

Members and non-members are encouraged to write about any astronomy-related topic. Contact the Newsletter Editor: Amy Cantu [cantu.amy@gmail.com](mailto:cantu.amy@gmail.com) to discuss format. Announcements, article, and images are due by the 1st day of the month as publication is the 7th.

### Telephone Numbers:

President:	Charlie Nielsen (734) 747-6585
Vice President:	Don Fohey Brian Ottum Ken Cooke Dmitri Tsahelnik
Treasurer:	Doug Scobel (734) 277-7908
Observatory Director:	Jack Brisbin
Newsletter Editor:	Amy Cantu
Key-holders:	Jim Forrester Jack Brisbin Charlie Nielsen
Webmaster:	Krishna Rao
Online Coordinator:	Jeff Kopmanis

**A NOTE ON KEYS:** The Club currently has three keys to the Observatory and the North Territorial Road gate to Peach Mountain. University policy limits possession of keys to those whom they are issued. If you desire access to the property at an unscheduled time, contact one of the key-holders. Lowbrow policy is to provide as much member access as possible.

Email to all members  
[Lowbrow-members@umich.edu](mailto:Lowbrow-members@umich.edu)



# University Lowbrow Astronomers



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