

## Inside this issue:

Comet Tsuchinshan-ATLAS by Brian Ottum .....	1
From the Desk of the Northern Cross Observatory by Doug Bock .....	2
Speaker Schedule .....	3
Peach Mountain Observatory ... on Mars? from Jack Brisbin .....	3
Open House Report by Don Fohey .....	4
Repairing the Club's 17.5 Dobsonian Telescope by Jack Brisbin .....	5
Great Lakes Star Gaze Trip Report by Don Fohey .....	6
Part of a Veil Nebula Panel Project by Glenn Kaatz .....	7
What's a 'Truly Dark Sky' by Adrian Bradley .....	8
Meeting Minutes .....	13
Club Information .....	14



## COMET C/2023 A3 TSUCHINSHAN-ATLAS

BY BRIAN OTTUM

### TECHNICAL DETAILS

Oct 20, 2024, 9 pm, Lake Hudson  
ZWO 2600 color camera, 200mm f/2.8 lens, AM-5 tracker  
SharpCap livestacked the 14 x 10 sec frames  
Gain 100, -15C cooling

### MY WORKFLOW

Capture the images  
Apply dark frame master to eliminate bad pixels  
Apply flat frame master to correct for vignetting  
Align frames on head of the comet  
Stack frames into one  
Reduce noise  
Eliminate gradients  
Reduce stars  
Increase contrast to emphasize comet  
Reduce to 300kb size so as not to fill others' storage space ☐

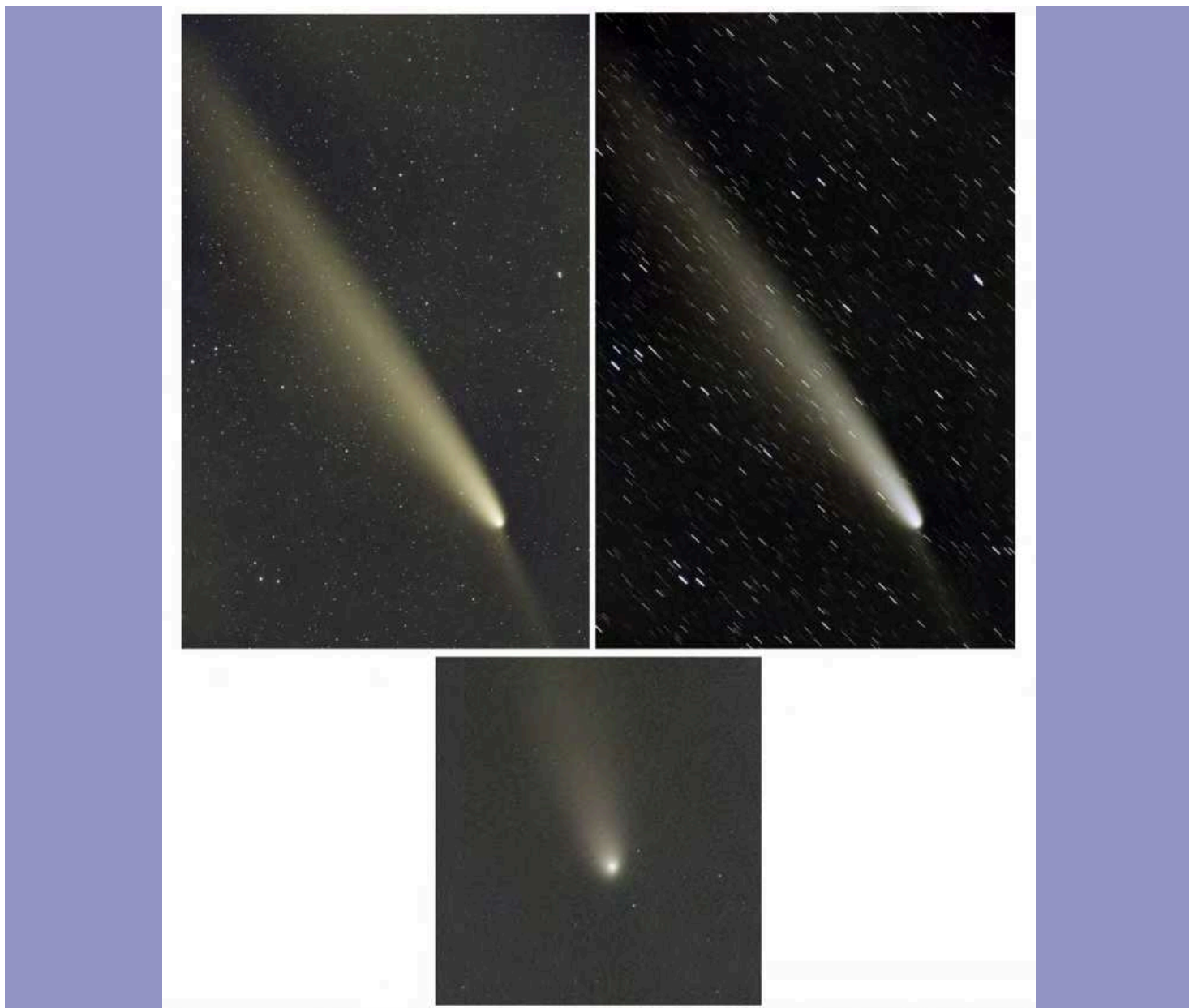
**More comet  
shots by Doug  
Bock, page 2,  
and by club  
members on  
our website!**



# FROM THE DESK OF THE NORTHERN CROSS OBSERVATORY

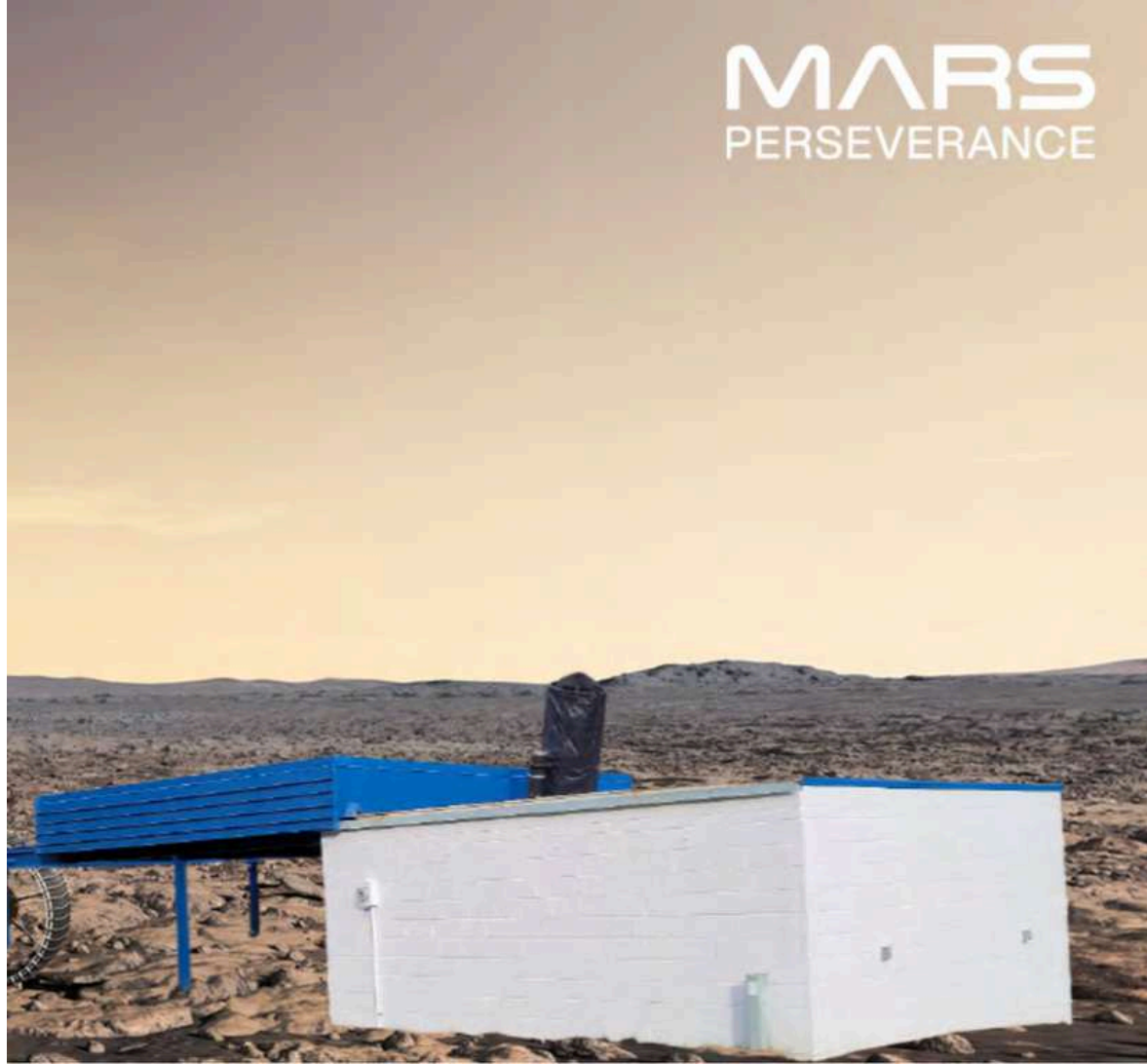
BY DOUG BOCK

**Comet C/2023 A3 Tsuchinshan-ATLAS** became visible to us northern hemisphere occupants this past month as it heads away from the sun and us. It is fading away but was bright enough to see visually for a couple of weeks and more through binoculars and telescopes. These photos were taken on October 20, 2024 from my observatory in my backyard, using a Canon 300mm prime lens at f/7.1 and the 10" f/8 RC. The cameras were the ZWO asi071mc PRO and the ZWO asi2600mc PRO. The first image was just 10 x 30 second sub frames stacked on the comet, while the second one is 60 x 30 second subs stacked on the comet. Note the movement in the second picture relative to the background stars. Finally the 3rd image is a single frame through the 10" □



This photo of the Peach Mountain Observatory on Mars was made possible through the NASA student STEM program website where they have a photo layout of Mars pictures and you can upload a photo of your choice to appear on it.

*From Jack Brisbin*



## UPCOMING MEETING SPEAKER SCHEDULE

### **November 15: Dragan Huterer**

Topic: The Universe Caught Speeding: Dark Energy, a Quarter-Century After

### **December 20: Gary Nichols**

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

### **January 17 David Gerdes, UM Astronomy**

Topic: What's Beyond Neptune? Search and Discovery in the Outer Solar System

### **February 21: Jeff MacLeod, NASA/JPL Solar System Ambassador**

Topic: TBA

### **March 21: Dr. Richard Goodrich**

Topic: Fear and Loathing in the Heavens

### **April 18: TBA**



# PEACH MOUNTAIN OPEN HOUSE REPORT

## SATURDAY, OCTOBER 26, 2024

BY DON FOHEY

The Open House was enjoyed by all who attended. Jack Brisbin operated the McMath telescope, Jim Forrester set up his 14.5" DOB, Barry Wissman his 20-year-old 8" Schmidt Cassegrain Meade, Brian Ottum had big 40x100 binoculars on a tripod for comet observation, and I set up my 14" DOB. Ken Cook managed parking and orientation for arrivals. He reported 33 guests. The highlight for most was the rare opportunity to observe a comet. Guest were able to see C/2023 A3, Tsuchinshan-ATLAS in the McMath, binoculars, and a variety of telescopes with different apertures and magnifications. As astronomical twilight progressed the tail became more prominent.

It was a nice, cool, dark and steady viewing evening. I enjoyed and shared some of the best views of Saturn and Jupiter I have seen. The thin edge on ring of Saturn could clearly be seen passing in front of Saturn, bands on the surface were discernible. The narrow gap was visible and guest were seeing 5 moons. Jupiter was in all its glory. I could see more detail in the equatorial bands than I have seen in a long time. Ganymede was resolved as a disk and we watched it slowly approach transit which began at 10:36 pm.

I found that the guests were some of the most enthusiastic that we have had at an Open Houses. Ken commented that there were "many families with young and old astronomers enjoying the night sky". One young girl enjoyed moving Jim's viewing ladder from telescope to telescope so that she could look thru each. One of the guests, Dave Robbins of Ypsi Twp., brought a Celestron StarSense telescope and he set up next to Jim's DOB. Jim worked with him some during the evening.

We were able to engage most in conversations. We shared views of galaxies, planetary nebula's, globular clusters, open clusters, and double stars, explaining each. We pointed out constellations and spoke of historical figures. Ken talked to a group about Johannes Kepler and Tycho Brahe. I heard William Herschel and his sister discussed. I also heard conversation about the New Horizon and Apollo missions. We saw clouds appearing in the west and some commented that the forecast had clouds arriving. We started packing, doing more talking than packing, and I noticed that some clouds just sort of appeared overhead without the customary moving from west to east. They were unusual in the long streamer shapes and almost transparency. I questioned "Is that aurora?" We all agreed that the clouds were unusual but would not go so far as declaring that it was aurora. By the time we finished packing, I looked up and we were certainly clouded over. I was home by midnight.

Brian Ottum had taken the image below with his cell phone looking southeast toward Dexter. You can see the Pleiades on the left. □



# REPAIRING THE CLUB'S 17.5 DOBSONIAN TELESCOPE

BY JACK BRISBIN

The club's 17.5 Dobsonian GoTo Telescope did not work well at this year's Astronomy At The Beach (AATB). There was no power to the distribution box, toggle switches, or RCA jacks. This meant the Servo cat, Sky Commander and Ski Fi unit did not work. We moved the telescope by hand to find various objects during the cloudy skies and attendee's liked what they saw.

On that Sunday afternoon, I started testing the power coming into the bottom of the rocker box. The two wires I was testing came from the XLR jack mount that goes to the battery and showed a reading of 12.9 volts. The wires and RCA jack on top of the rocker box showed Zero! I returned the telescope back to the Observatory on Sunday. I knew I had to disassemble the telescope and rocker box from the ground board. This meant a repair day at the Observatory. Don Fohey contacted me and offered to help. We scheduled a repair day at the observatory the first week in October. We brought our testing equipment and started to remove the mirror box assembly from the rocker box, then the ground board, and started testing. We found the screws were loose on the bottom of the ground board. Don started to tighten the screws and we added some Loctite (blue) thread locker. We then completely reassembled the 17.5 dob and tested the power system. The Servo Cat lit up and the Sky Fi unit turned on!

The power problem is now solved and the Loctite thread locker is part of a long-term solution. Thanks to Don for helping. ☐



# GREAT LAKES STAR GAZE 2024 - TRIP REPORT

BY DON FOHEY



The Great Lakes Star Gaze (GLSG) is an annual star party near Gladwin Michigan. This year was the 22nd, held October 3-6. I arrived Saturday afternoon for the last night of observing and found a spot on the field to set up my 14-1/4 inch DOB. I was surprised to see many packing up. I was told that Thursday and Friday nights had good viewing at times with clouds moving in and out. Some I spoke with had gone to bed early and missed the clearing skies later in the night. The forecast for Saturday night was for clouds at 1 am and possible rain by 4 am so many were going to leave. After setting up I had some nice conversations with amateur astronomers from across the state, most of whom made the GLSG and annual event.

At 6 pm Norbert Vance gave part two of his "Mysteries of the Southern Skies" presentation, discussing images and skies from Cerro Tololo. After his presentation the raffle drawings were conducted and I won a door prize! I choose the "HIGH QUALITY" 20x50 Water Proof Binoculars. With the conclusion of the drawings, those who had packed up started leaving the field.

I enjoyed the evening under the stars. The sky was darker than both Peach Mt and Lake Hudson, with a pleasant Milky Way overhead. My PushTo electronics were accurately calibrated and I easily went from object to object in my observing list. I visited the hospitality tent for some hot chocolate and a brownie for a break.

About midnight, a delightful father and daughter had come up from the campground, hearing that there was a star party in the field, and they inquired as to what I was looking at. I chose to show them different object types. A Galaxy (M31), a planetary nebular (M57), a

planet (Saturn), and a globular cluster (M2). That was a nice diversion from my solitary observing.

About 1 pm, Norbert Vance found me at my telescope and we shared some views of CetusA (M77). Norb explained that it was the prototypical Seyfret type galaxy. I think it was my favorite of the night, I have not seen it very often and its distinctive oval shape and very bright center make it a very striking object. We then opened up the binoculars (which he had purchased for the door prize) and tried them out. We pointed them to the Pleiades, Andromeda, and the Double Cluster. We were both pleased with the clear and crisp views. The clouds moved in, I packed my telescope into the car, and I was in my tent by 2pm.

I am hoping that more Lowbrows consider attending next year. It is only a 2-1/2 hour drive from Ann Arbor and has many choices for accommodations.

On the way home Sunday I stopped in Coleman Michigan to visit the Solar System Model along the Pere Marquette Rail Trail. They have a 600-million-to-one scale model of the Solar system. It starts with a 7.5 foot diameter Sun and then all the planets are positioned to scale along the trail. It is the straightest paved trail I have ever seen. It appeared to go to a vanishing point as I looked East. At each planet along the trail you can look back and see the model of the Sun. Jupiter and beyond would require a telescope. I walked the 0.84 miles to Jupiter and turned around. I would like to return with a bicycle and ride the 5.6 miles to Pluto. This model physically demonstrated to me the empty vastness of the Solar System. □



# PANEL FROM VEIL NEBULA PROJECT

BY GLENN  
KAATZ



Here's the first panel of my Veil Nebula project. Here are the particulars:

The Veil Nebula is a supernova remnant located approximately 2,400 light years away. The massive star explosion that created these delicate wisps occurred between 10,000 and 20,000 years ago, and would have been bright enough to be visible in the daytime.

This is the first panel of a planned 2 panel mosaic, and lacks the eastern portion of the nebula. At the top is the Western Veil (NGC6960) and in the middle is Pickering's Triangle. Just beneath the triangle are NGC6974 and NGC6979. Out of the field of view, at the bottom, is the Eastern Veil (NGC6992 and NGC6995).

**The image was captured in the Hubble palette using the following:**

William Optics Z61 refractor and Z61 field flattener  
ZWO OAG with an ASI120mm mini guide camera  
ZWO electronic filter wheel with Baader 6.5mm Ha, ZWO 7mm OIII and SII filters  
Celestron GCX mount

38X5 min Ha, 40X5 min OIII and 42X5min SII exposures for a total integration time of 10 hours  
Processing was done with Pixinsight, RC Astro star, noise, and blurXterminators, and  
Photoshop. □



# WHAT'S A 'TRULY DARK SKY'?

BY ADRIAN BRADLEY

When it comes to dark skies and dark sky locations, everyone will have their favorite. I posted this image on the Okie Tex Star Party Facebook page and dared to ask a question, "What's the darkest place in the U.S., or that you've been to, that compares to the Dark Skies of Black Mesa Oklahoma?"



Facing South at the Okie Tex Star Party towards the Galactic Center over Camp with a non-modified camera.

Of course I got some answers with places such as Big Bend National Park, as well as places in Utah, New Mexico, California, and Arizona. One thing they all had in common: All of these locations were west of the Mississippi River and in some location with higher altitude.

Those of you who live on the eastern side of the Mississippi and have been to Cherry Hill Dark Sky Park would rightfully argue that it's the darkest place you've been to. Still, others here in Michigan would mention the upper mitten, especially in the Huron-Manistee National Forest. Still others will quote sites in the Upper Peninsula. (I especially loved it about 30 miles south of Paradise, MI, and I'm sure there are even more dark sites like that.)

Well, the bottom line is that we can only use our experiences to determine what we feel is truly dark. But much like the Dunning Kruger effect, I think we as amateur astronomers can sometimes be far too quick to assume that because we think it's dark to us, it's dark to everybody else, too. For instance, many a visitor to the Headlands Dark Sky Park tell me about how dark it is there. But I can't help but think how further south along the coast of Lake Michigan, even darker locations exist.

## SO HOW DO WE KNOW WHAT'S TRULY DARK?

In Kenton, Oklahoma (where the Okie Tex Star Party is held), and the neighboring town of Black Mesa, Oklahoma, many notice how dark those skies are. They see things such as the Milky Way go from horizon to horizon, and they also see many details in the Milky Way that they may have only spotted in pictures.

But that may not be good enough to use as a definition.



The Milky Way begins to shine in Soda Pocket Campground in the mountains near Raton, New Mexico during mid-nautical twilight.

**DARK SKY continues, p. 9**



## **DARK SKY continues...**

Jumping ahead to when I returned home, went to Port Crescent State Park, and imaged the Milky Way with Comet Tsuchinshan/ATLAS: I didn't see the Milky Way at nautical twilight, nor did I expect to. But once we got to Astronomical Darkness, I noticed something I didn't realize in prior trips there - the Milky Way actually went from horizon to horizon!!

But, if you take a look at the image (upper right) -- and when I do images I do my best to capture the sky color -- you'll notice the difference in sky color in this image than the one (below right) from Capulin, New Mexico.

None of these pictures really do justice to how much darker it seems in a place with very little civilization such as the towns near the New Mexico / Oklahoma border. And interestingly enough, as I travelled back and forth from these locations, I felt as if it was just that much darker in Black Mesa.

### **OK NICE PICTURES BUT I'M SURE YOU WOULD GET SIMILAR ONES IN MICHIGAN. AFTER ALL, DON'T YOU PROCESS YOUR PICTURES?**

Very good point there. Even if I try to convince you that my processes preserve the sky color and apparent brightness of the Milky Way, most folks won't buy it.

So I try to include SQM-L readings, because the darker the sky, the higher the SQM-L Readings. But I routinely got numbers such as 21.3, 21.2, and even 21.0 in these so-called dark skies of Kenton, Black Mesa, New Mexico, etc. I thought my meter might be broken. Then, I realized that things like haze, airglow (the greenish and reddish glow in some of my images), and other



**This is Port Crescent State Park in Port Audstin, MI. That's Comet Tsuchinshan-ATLAS.**



**This is the old dilapidated house in Capulin, New Mexico. There's more airglow visible here.**

factors can lead to lower readings than expected. Heck, my battery might be fading and I need to buy a new one. So the SQM-L meter wasn't much help.

The eye test really doesn't help, because I've learned over time that there just isn't much convincing a person who feels that they've experienced very dark skies and just won't worry about what else could be out there. So I think it's important to let it go and realize that this whole argument is subjective.

**DARK SKY continues, p. 10**

**DARK SKY continues...**

**THE SKIES OF [INSERT YOUR FAVORITE DARK SKY LOCATION HERE] ARE THE DARKEST IN THE COUNTRY! 'NUFF SAID!**

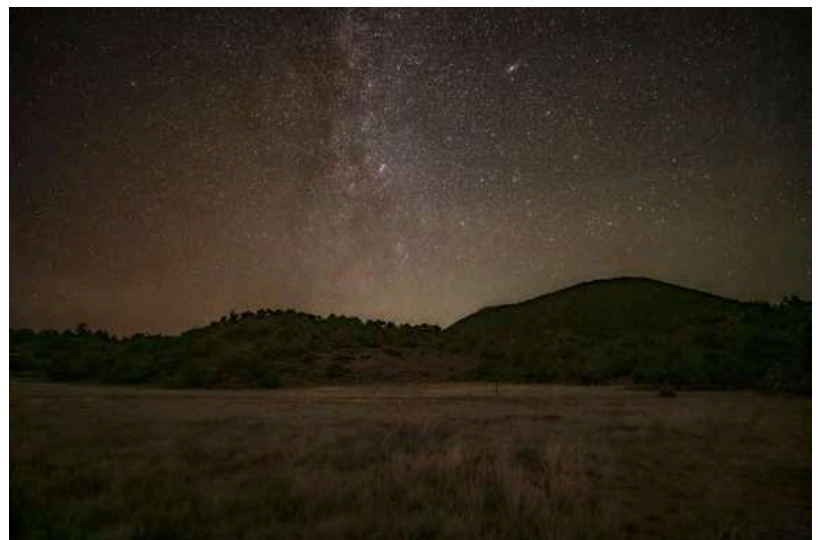
I think this statement lacks humility and exposes the unwillingness (or inability) to travel to different locations. That's why I have always marveled at what I see (or can't see) when I'm in the dark skies of Black Mesa, Oklahoma, or the surrounding areas.

The sad part of this is that these darker locations are losing their darkness, too. Take a look at that picture (top right) taken from the side of the dead volcano in Capulin that is now a national monument. We are looking south out at other volcanic peaks in the area, as well as some very bright lights in the town of Capulin itself. And yes I caught a meteor during my capture of this scene.

The Milky Way Appears just as you see it in this picture although without quite the detail. But so do all of the bright lights in the town, and additionally there's cars going up and down the highway contributing to the amount of light surrounding the volcano. Here I thought it would be just as dark as it is in Black Mesa, and I find out the hard way that even out here, it is a fight to keep dark places dark.

The Orion Side of the Milky Way (middle right) can you see any of this at your dark site? Never mind some of the Ha regions you see here. Everything else is naked-eye visible.

I only have two more ways to try to convince you that there are darker sites out there. One way is to look at what the other sides of the Milky Way look like away from the galactic center. If you can't see any other parts of the Milky Way Naked Eye, I don't think you're at a very dark location.



**Capulin is pretty dark out there... note how well you can see the Casseopeia/Perseus side with both M31 and M33 visible in this picture. The main volcano peak is to the right.**

**DARK SKY continues, p. 11**



## **TELL US THEN, WHAT WAS THE DARKEST PLACE YOU'VE BEEN?**

It was when I went back in time to walk with an Allosaurus. This is not a location that I think is typically visited at night by many people. In fact, it is devoid of any human lighting whatsoever. This location was, as our young millennial might say, way 'different.'

I think it's these sort of sites that you have to take yourself to in order to really feel what it's like to be somewhere dark. Human lighting often accompanies any location, even at the site of Okie Tex and in some surrounding areas where you can see evidence of human civilization. At all national parks there might be a light or two surrounding the area - a sign that you're not far from gaining someone's attention. But out here in this vast Nature Preserve, where this Allosaurus used to roam during the Jurassic Period in Earth's history: In some ways you wonder if the Allosaurus is going to come back from some other location. And if not a dinosaur, whatever else may live and roam free out there might come up and be curious about why you're there instead of among your own kind. Bears, wild feral hogs, and mountain lions roam Black Mesa in addition to other animals like larger birds and deer.

Your night vision, which you may have felt was pretty darn good at your other dark sites, begins to fail you. You reach for your red light, and still can't seem to see much further than a few feet. It's as if you were walking through a dense forest at night. But this isn't a forest, it's open area. If you hear a snort and something walking through the grass behind you, you might not see it unless you cut on a huge flood light - and if you do that, you can kiss your night vision goodbye for at least 30 mins. You literally reduce your vision to the point that when you cut the light off, you are now blind.



**Petrified Allosaurus tracks, curving away from us towards that sky.**

You can look up at the sky to get some direction, but it won't help you. You try to fix your gaze at something in front of you on the ground, and you just flat out can't see it. You cut on your red light and you begin to walk awkwardly towards the little bit of land that you CAN see. You stay still for around 15 minutes or so and finally you begin to see a little further away. Your night vision slowly begins to return.

Now I describe this in a place devoid of civilization. But once again, I realize that the common, non-amateur astronomer or night sky enthusiast may experience this in places such as Peach Mountain.

## **SO, WE'RE RIGHT BACK TO WHERE WE STARTED, AREN'T WE?**

In the end, I suppose darkness is in the eyes of the beholder.

When we fight light pollution, we fight this innate fear of the dark and concerns about safety. Most aren't going to go to some of the places that I went to in Black Mesa to take these photos by themselves, even if they love doing night photography. They visit a place that seems dark, but they may not venture off the path to get as far away from human civilization as possible. And the harder it is to do so, the more that light pollution is affecting what we can see in the night sky.

**DARK SKY continues, p. 12**



Other side of the Milky Way (Casseopeia/Pers eus) near some rock formations.

I invite all of you to try stretching your limits of where you'll go to see a truly dark sky, and perhaps take images of it. During the meandering of this article, I've basically come up with these qualifications for a 'dark sky':

- Human civilization is not easily visible. If the nearest place for supplies is 50 miles away, it's probably dark where you are.
- You have some concern about animals that may get far too curious.
- Any fears of the dark you have become front and center in the location you are in.
- You're not sure anyone will hear you scream.
- You look up and you can see the Milky Way clearly, from horizon to horizon.
- You see color and structure in the Milky Way. The rift going from Cygnus to Sagittarius is clearly visible.
- Speaking of Cygnus, you see the Milky Way glowing around Cygnus easily.
- When Orion comes up, you can see the Milky Way going by it very clearly
- If the Zodiacal light is out, it is just as bright as the Milky Way.
- Your night vision disappears quickly, and doesn't return - even if you just turn on your phone's light.
- You go blind if you use a bright white light for any reason at all.
- You can't see to the horizon.

I think you get the idea. 'Truly dark' isn't just a sky condition, it's your surroundings as well.

And, of course that definition changes with every darker location you go to. Even I am open to going to different places that may be darker than Black Mesa, Oklahoma. The Allosaurus might not be there but there may be other dangers to look out for. At some point your safety must win out so if you do venture out to some darker sites, be careful and always have a plan of escape back to a safe point such as a car or campsite.

Good luck and clear, **dark** skies! ☐



Lowbrow Meeting Minutes  
Friday October 18th 2024  
Taken by Don Fohey

Charlie Nielson began the meeting at 7:35pm.

The speakers were club members who related their 2024 Solar Eclipse experiences.

Kathy and Kurt Hillig spoke of their trip to Mazatlan Mexico

Ed Hernandez had images and spoke of his trip to Boerne Texas.

Adrian Bradley had images and spoke about his experience in Perrysville Ohio

Don Fohey showed a video of how dark it became in Indianapolis Indiana

Doug Nelle spoke of his trip to Erie Pennsylvania

Charlie Nielsen began an abbreviated business meet about 8:40pm. Another program was scheduled to use the room at 9pm.

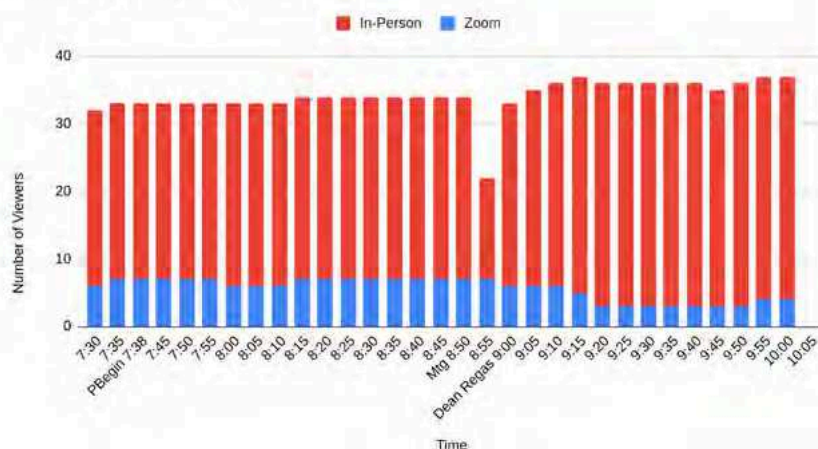
He had some future presentation idea's.

He noted the club enthusiasm for the comet Tsuchinshan-ATLAS which has been in the evening sky and suggested that we should pursue a speaker on the subject of comets. Adrian Bradley said he would try and contact David Levy.

He also suggested that the club members may be interested in old time computers remembering what was done with very little memory and devices like 8" floppy drives.

Charlie then brought up the possibility of the club purchasing a SeeStar telescope. The members were asked who would be interested in borrowing a SeeStar telescope if the club had one and 5 or 6 members raised their hands. Charlie said Amy Cantu had agreed to be a custodian of the telescope. Don Fohey said that it should be verified with Amy that she indeed wanted to take on the responsibility and that someone needed to be selected who would be willing to purchase the telescope and be reimbursed by the Treasurer. Adrian Bradley raised his hand and said that he would also consider being a custodian for the telescope. We need to vacate the room so the discussion was tabled until the next meeting.

Meeting Attendance  
October 18, 2024 - Eclipse Experiences



## 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)

### 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



[www.youngastronomer.org](http://www.youngastronomer.org)