

REFLECTIONS / REFRACTIONS

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University Lowbrow  
Astronomers

February 2019

VOLUME 43, ISSUE 2

## Lunar Eclipse of January 20,21 2019



Composite Image by Doug Scobel

### Social Media Impact

by Adrian Bradley (Lowbrow Facebook Administrator)

The Lowbrows' contributions to the images of the 2019 Lunar Eclipse were loved by a great many people on social media. The images from the event that we posted generated enough 'likes' to push us over 800. There were a lot of appreciative folks commenting on the content and quality of our pictures.

Contributors were Doug Scobel, Jeff Kopmanis, Yogesh Chavarkar, Doug Bock, Adrian Bradley, Abe Oraiqat, Mike Hess, Brian Ottum, Glenn W. Kaatz, Jodi and Roy McCollough and Awni Hafedh. Look for these and other photos on our Facebook page! Simply go to Facebook and do a search for University Lowbrow Astronomers to reach our page.

Our brave Lowbrows braved 0 degree weather to gather these images. Our images included screenshots of live broadcasts, DSLR and mirrorless camera photos, images of the eclipsed moon against the backdrop of stars in the sky, a detailed images directly acquired through telescopes, other telescope images caught on a smartphone through the eyepiece, beautiful composites of images taken during phases of the eclipse, and even an image that contained a very faint 'afterglow dot' of the meteor impact on the moon that happened during the eclipse. We came 'oh so close' to having our own image of the eclipsed moon with an impact flash!

**Total Lunar Eclipse Photography by Doug Scobel**

This shot was taken at 00:11 EST, just about mid-eclipse. I used my Canon 7D mounted to my Vixen GP2 German equatorial mount. Lens was my trusty "birding lens", a Canon 100-400mm zoom, set to 400mm. Exposure was 0.6 second at f/5.6, ISO 800.

I did a coarse polar alignment on the mount and let it track. It was verrrrry cold, below zero, so my MO was to run out, trip the shutter, confirm the exposure, glance up at the moon, and run back inside. Repeat every five minutes or so. I was outside for no more than a minute at a time, usually less. I captured all of the partial phases, late penumbral to early penumbral. My last exposure was at 2:00 am.

I had to recenter about every 20 minutes, which was made easy by the mount's manual slow motion knobs. To prevent the lens frosting up (it was pointing nearly straight up), I rubber-banded some pocket hand warmers to the barrel of the lens, thanks to a tip from astro-photographer extraordinaire Brian Ottum. I also used an AC to 12V DC converter to power the mount's RA motor, as I didn't want to risk battery failure in the sub-zero temps.

All my precautions paid off. No equipment failures, no frostbite, a boatload of images, and my son Nick was there shooting away too. It was a fabulous night!

A little more photo info for those who want a few more technical details:

- Aperture priority, lens wide open at f/5.6.
- Auto ISO, with a max value of 800.
- Auto bracketing, +/- one and a third stops, with the longest exposure being at ev0.
- Spot metered on the moon.
- Full spread of autofocus spots so that no matter where the moon was in the frame the camera would find an edge to focus on. Even at mid eclipse there was enough light and contrast for the camera to autofocus.
- Wired shutter release to avoid camera shake. Turned off image stabilization, which can get confused when the camera is on an already stable platform.
- Camera RAW image was processed in Photoshop Elements 9 to produce the final image.





# SUNDOG !

**BY Jack Brisbin**

A Sun Dog or as Aristotle (384 BC to 322 BC) called it a “Mock Sun”, and presently referred to as

Sun Dog and considered a parhelion (plural parhelia) In Meteorology. This atmospheric optical phenomenon consists of a bright spot on the left or right side of the Sun, but as shown in the picture below, both sides of the Sun. The two Sun Dogs on the sides of the Sun are within a 22 degree halo. There are many things referred to as Sun Dog, such as; Sun Dog the movie, Sun Dog for gamers, Sun Dogs Raw Bar and Grill and Sun Dog on the Beach..

Based on the picture below our Sun Dog is a member of the family of halos caused by the refraction of sunlight by ice crystals in the atmosphere. Because of this unique scattering and refraction the light that comes from plate-shaped hexagonal ice crystals is suspended in high cold cirrus or cirrostratus clouds and drifting in freezing moist air at low levels as Diamond Dust (Diamond Dogs?). The ice crystals act as prisms bending the light rays passing through the (Ice crystals) with a minimum deflection of 22 degree's. So how did we get the name “Sun Dog”

My best guess is that the term Sun Dog was created sometime around the 1500 to 1600 AD. in Europe. In that era of time men supported their families by farming, after a long day in the field, farmers would stop by the Ale House for an Ale or two maybe three. They would leave at sunset to get home before dark. They saw a view of the sun similar to the picture below (without the telephone poles and wires) as they stood and watched, the dogs started to *bark and howl*.

The farmers *inebriated brain* could not tell the difference between sight and sound, ....it's a....

**Sun Dog !**

**But wait  
there's  
more!!**

**Think of it  
this way;  
you are  
shoveling  
snow and  
you see a  
Sun Dog.  
Get on your  
computer;  
reach for  
your wallet  
and**





**Comet 46P/Wirtanen**  
**Lowbrow Images**  
 (Sent via email to members)



Image by Clay Kessler (note, editor cropped image)

Clay Kessler wrote: "Here is my try from last night. (Dec.17) I had some setup to do - the comet was farther from M45 than on Sunday so I went with a 135mm lens. That was not "quite" wide enough so I changed to an 85mm. I did not like the way the stars looked with the 85 so I changed again to a 55mm. That worked OK and the clouds cooperated - I got 60 120 second shots. Calibrated and stacked with Nebulosity4, processed with Photoshop, cropped about 20% to get rid of most of the dust donuts."

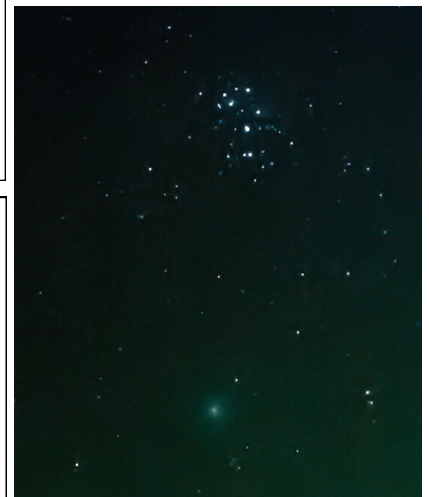


Left image by Doug Bock  
 Comet 46P/Wirtanen  
 Saturday night, December 8, 2018  
 Canon T3i with the 75 to 300 mm Zoom lens, at 300 mm.  
 5 x 120 seconds stacked. ISO 3200

Right Image by Nathan Murphy 12/16/2018 8pm

- ◆ at first quarter moon
- ◆ in my front yard in the middle of Denver
- ◆ surrounded by streetlights and lights from neighbors' houses

Some pretty extreme developing and cropping to just get to the point you can see the comet, but it's there! at least my stars are round? Canon 6D on a Synta camera tracker, EF 50mm f/1.4, 30sec at f/4.0 ISO6400



Comet 46P/Wirtanen  
Lowbrow Images Continued



Image by Doug Bock 12/4/2018

Doug Bock wrote in an email to members on Dec 5th 2018

“Comet 46p from last night. It stayed clear for several hours here at the Northern Cross Observatory last night. I managed to get 120 x 20 second frames of Comet 46P. This time guiding on the comet core with the auto guiding system.”

- ◆ 10" f/8 RC, ZWO asi071mc cooled to -5C gain of 500
- ◆ Losmandy G11

Many Lowbrows Emailed that they had seen the comet. A few selected quoted below.

Brian Ottum Ph.D. “I Just stepped out onto my deck with 7x50’s and saw 46P, just below the Pleiades. “

John Causland: “Found it, but in a 6 inch wide field scope!!! My image stabilized 15x45’s couldn’t pick it out at all from Ann Arbor.”

Doug Scobel: “Just saw it in 10x50 binoculars from my Saline back yard.”

Christopher Sarnecki: “Last night saw Comet 46P in my 8x42 birding binos... ..barely. “

Charles Steele: “I was up north last night and saw it with a hunters pair of 10x25 binocs. “

Bobby G.: “Been viewing in 8x42’s, broke out the starblast last night with 24mm wide angle. Just awesome... “



## Heart Nebula (IC1805 )

By Federico Spotti

(extracted from an email to members on Jan. 14, 2019)



I decided to bring my gear out for a quick session (Hudson Lake is a bit far to go out in a 50% moon night) to try a subject I never really managed to image before. I placed my setup in a condo area in Ann Arbor (not far from Briarwood) not expecting anything, given the amount of lights around me. I pointed the scope to IC1805.

### Setup:

Skywatcher AZGTi

Borg90FL@F4

ASI294PRO

Baader Moon and skylow filter

Sharpcap 3.2

Startools and Photoshop for post processing

30 second frames, unguided, gain 350, for a total of just over 2 hours of data

The result is not super clean or APOD quality, but pleasant, given the location was shot from and a very quick post processing.

**January Sun Dogs**  
**Member Photos**  
 (extracted from member emails)

Right: Clark B. Wierda emailed this photo to members on Jan 7, 2019. He wrote: "I saw several different arcs while out walking yesterday. I did manage to get a picture of a sundog over Sherzer Observatory."



Above: Glenn Kaatz wrote in an email to members on Jan 6th. "I was fortunate to be at home with my camera available, and captured one of the sun dogs with a telephoto lens."



**Upcoming Events**

DATE	EVENT	LOCATION	
Friday February 15, 2019. 7:30pm	Monthly Meeting	Room G115 Angel Hall 435 South St. Street Ann Arbor, MI	Dr. Xianzhe Jia , Associate Professor, UofM, Climate and Space Sciences Engineering



## University Lowbrow Astronomers - Meeting Minutes 1/18/2019

**MEETING START - 7:34pm**

Honorary Lowbrow, Dr. Fred C. Adams gave a talk on the subject 'Planet Nine From Outer Space'. His talk centered around showing proof that a 9th planet (fitting the planet definition of the IAU that eliminates Pluto) could exist. There are trans-Neptunian objects (TNOs) whose orbits Neptune could not affect, yet they appear to be affected by something else of a certain mass, location, and eccentricity of orbit around the sun. After the talk was over, and a short break, we went into the business meeting.

**BUSINESS MEETING:****President Charlie Nielsen:**

- It was time to finalize the replacement vote for the VP spot vacated by Larry Halbert. Liz Calhoun has willingly volunteered for this position. By show of hands, a majority of Lowbrows voted for Liz to assume the role of our latest VP.
- The Leslie Science and Nature Center will be hosting an event on April 27th, which is also an open house night for us. We are agreeing to have 1 or 2 members assist with their event.
- A couple other dates needing Lowbrow volunteers: Aug. 17th, a Backyard Campout event, and Oct. 5th, a star party. More details to come in future meetings.
- A discussion started regarding our lack of availability for daytime events, and whether or not we needed to remove the wording from our website.

**Vice President Adrian Bradley:**

- Will inform the coordinator of the Rolling Hills event that we can assist with telescopes on Sept 7th. Because this event is run by the Rolling Hills Park and families pay for a camping spot, we won't advertise for this on our website or Facebook page.
- A date for the Great Lakes Star Gaze has been picked. The event has been shared on our Facebook page.

**Vice President Jim Forrester : Nothing to report****Observatory Director Jack Brisbin:**

- The U of Michigan Building Survey report for the observatory was to be completed during this month. So far, no report has been turned in to us. We are expecting the report to be complete in February.
- Dave Schindell from Data Optics gave the club a donation of rubyolith sheets, each rubyolith sheet is \$1. Dave also sold packages of Optical wipes used in the optics industry for \$5.00 a package.
- Jack will bring the rubyolith sheets to the February meeting.

**Newsletter Editor Don Fohey:**

- The deadline for submissions to the February newsletter is Jan. 29th.
- Is in contact with Carla Sharp of the Brighton District Library. They are looking for an organization to do another astronomy event for them.
- Worked with Tom Hagan who works with the Radio Astronomy Group at the McMath Hulbert Observatory. I now have a good signal from the Very Low Frequency Solar Ionospheric Receiver that I build for Chris Faust at Gordon Parks High School.

**Treasurer Doug Scobel:**

- We have 151 memberships, and \$7,406 in the treasury.
- Can add members to the ACNO list along with Krishna Rao and Kurt Hilling.
- Invited visitors to our meeting to become members.

**ADDITIONAL MEETING DISCUSSION**

- We are looking into the situation with the dance troops that are often using our room prior to meeting nights. For now we simply inform the troop that we have the room reserved and they leave.
- Please support Camp Burt Shurly, which starts during the summer. Dates are being decided on now.
- There was a discussion on trimming or outright removal of trees on the Observing Area/Field next to the Radio Telescope. This would require approval from the College of Engineering..

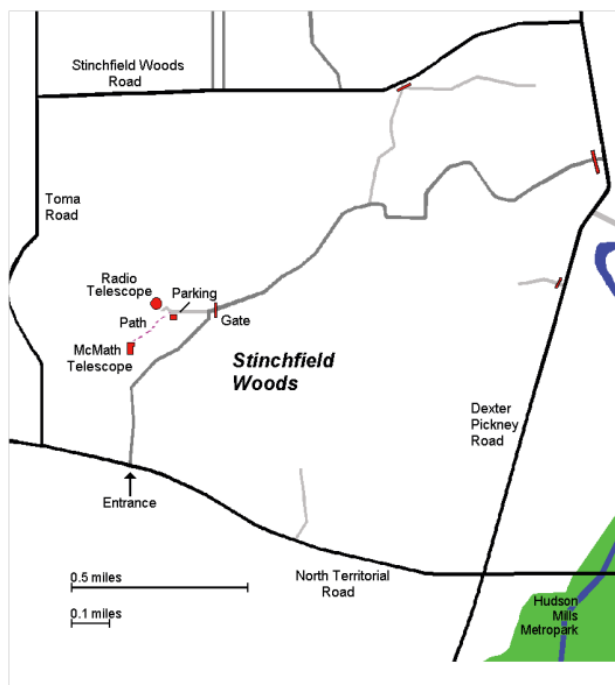
**MEETING ADJOURNED AT 9:34PM.**



### Places & Times

Monthly meetings of the University Lowbrow Astronomers are held the third Friday of each month at 7:30 PM. The location is usually Angel Hall, ground floor, Room G115. Angell Hall is located on State Street on the University of Michigan Central Campus between North University and South University Streets. The building entrance nearest Room G115 is the east facing door at the south end of Angell Hall.

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 radio telescope, 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 cancelled if the forecast is for clouds or temperature below 10° F. For the most up to date info on the Open House / Star Party status call: (734) 975-3248 after 4pm. 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. Evening can be cold so dress accordingly

### Lowbrow's Home Page

<http://www.umich.edu/~lowbrows/>

### Membership

The University Lowbrow Astronomers membership dues are \$30 per year for individuals or families, \$20 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula of Michigan. Membership entitles you access to our monthly Newsletters on-line at our website and use of the 24" McMath telescope (after some training). A hard copy of the Newsletter can be obtained with an additional \$18 annual fee to cover printing and postage. Dues can be paid at the monthly meetings, by PayPal, or be check made out to University Lowbrow Astronomers and mailed to:

**The University Lowbrow Astronomers**  
**P.O. Box 131446**  
**Ann Arbor, MI 48113-1446**

Lowbrow members can obtain a discount on these magazine subscriptions:

**Sky & Telescope - \$32.95/year or \$62.95/2 years**

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

For more information about dues or magazines 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: Don Fohey [donfohey@gmail.com](mailto:donfohey@gmail.com) to discuss format. Announcements, articles and images are due by the 1<sup>st</sup> day of the month as publication is the 7<sup>th</sup>.

### Telephone Numbers

President:	Charlie Nielsen (734) 747-6585
Vice President:	Adrian Bradley (313) 354 5346
	Jim Forrester (734) 663-1638
	Elizabeth Calhoun
	Dave Jorgensen
Treasurer:	Doug Scobel (734) 277-7908
Observatory Director:	Jack Brisbin
Newsletter Editor:	Don Fohey (734) 812-3611
Key-holders:	Jim Forrester
	Jack Brisbin
	Charlie Nielsen
Webmaster	Krishna Rao

**A NOTE ON KEYS:** The club currently has three keys each to the Observatory and the North Territorial Road gate to Peach Mountain. University policy limits possession of keys to those who 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



Member Club



Astronomical League Member Society  
#201601, Great Lakes Region

University Lowbrow Astronomers  
P.O. Box 131446  
Ann Arbor, MI 48113

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