



STAR FIELDS

Newsletter of the
Amateur Telescope Makers of Boston
Including the Bond Astronomical Club
Established in 1934
In the Interest of Telescope Making & Using

Vol. 31, No. 10 November 2019

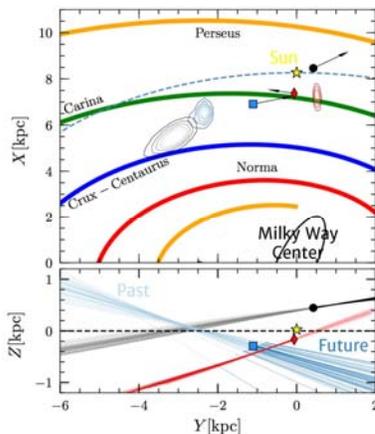
This Month's Meeting . . .

Thursday, November 14th, 2019 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

Parking at the CfA is allowed for the duration of the meeting

When the Referee Lets You Name Your Stars



Sampled Galactic trajectories. Courtesy Vallée 2008 and R. Raddi et al.

Digital surveys have mapped the positions of most stars in our night sky down to a limit roughly 100 million times fainter than can be seen by the unaided eye. It is therefore rare for astronomers to "discover" new stars. However, unraveling new classes of stars by grouping similar types of objects connected by a physical phenomenon happens often at the cutting edge of astronomy. Our speaker this month is Dr. JJ Hermes who will discuss the joys (and pitfalls) of naming new classes of stars by focusing on a recent discovery: stellar remnants that were once in a close binary system but were flung out of our Galaxy after a disruptive supernova explosion.

Dr. JJ Hermes is an assistant professor in the Department of Astronomy at Boston University. His focus is on high-precision observations of the endpoints of the lives of stars, planets, and

binary systems. Before moving to Boston in 2019 he was an ERC Postdoctoral Research Fellow at the University of Warwick, England, and then became a Hubble Fellow at UNC Chapel Hill. He completed his Ph.D. at the University of Texas at Austin in August 2013.

Please join us for a pre-meeting dinner discussion at House of Chang, 282 Concord Ave., Cambridge, MA. at 6:00 pm before the meeting.

President's Message . . .

One of my favorite email messages I receive weekly is from the American Association of Variable Star Observers (AAVSO). In the email, AAVSO outlines the number of my cataclysmic variable observations that were included in data downloads by professional astronomers and students for the last seven days. It's gratifying to see observations I painstakingly recorded being used by astronomers. I ask, in what other field of science can amateurs make meaningful contributions that help to drive the scientific process?

Astronomy offers many opportunities to amateurs, including exoplanet detection and confirmation, occultation measurements, variable star photometry, spectroscopy, asteroid and comet detection with photometry, and astrometry follow up. This work is not difficult but does require attention to detail and a good understanding of the system one is using to make observations. There are several excellent programs available to the citizen scientist that actively provide training and support. As one example, the AAVSO sponsors programs for visual, DSLR, CCD and photoelectric photometry techniques for all types of variable stars. The Minor Planet Center wishes that amateur astronomers assist in confirming (NEO) Near Earth Orbit objects as well as minor body photometry and astrometry. Many of our members are aware of the Citizen CATE (Continental America Telescopic Eclipse) Experiment which enabled amateurs to produce a scientifically unique high-resolution, continuous 90-minute movie of our sun's inner corona. And finally, there is the ongoing Project PANOPTES (Panoptic Astronomical Networked Observatories for a Public Transiting Exoplanets Survey), an effort to build low cost, near identical, DSLR driven observatories to aid in the automated discovery and confirmation of exoplanets.

So, given my interest in these topics, I jumped at the opportunity to meet up with Bill Toomey and Bruce Berger to try our hands at some DSLR photometry utilizing our ATMoB Research and Imaging Observatory (ARIO). Bill came prepared with his Canon camera and within minutes was collecting AAVSO starfield images using the precise Paramount mount and 102mm apochromatic refractor combination housed in ARIO. Over the next few hours, light, dark, bias and flat fields were collected and processed to yield ARIO's first scientifically relevant data to date. I was shocked at how easy the process had become over the years after first starting variable star observing.

It was a lot of fun and it reminded me of my time collecting cataclysmic variable data for submission to the AAVSO. A big difference was the camaraderie and general knowledge sharing

that occurred over those few hours. While astronomy is certainly something that can be enjoyed alone, I found it invigorating to experience the process with other like-minded people. With ARIO in place, we now have a stable platform for the type of work I outlined above. If you have an interest in learning more about imaging or the process of generating scientifically relevant data, please feel free to reach out to me, Bill Toomey or Bruce Berger. We would be more than happy to discuss projects you may have for our observatory.

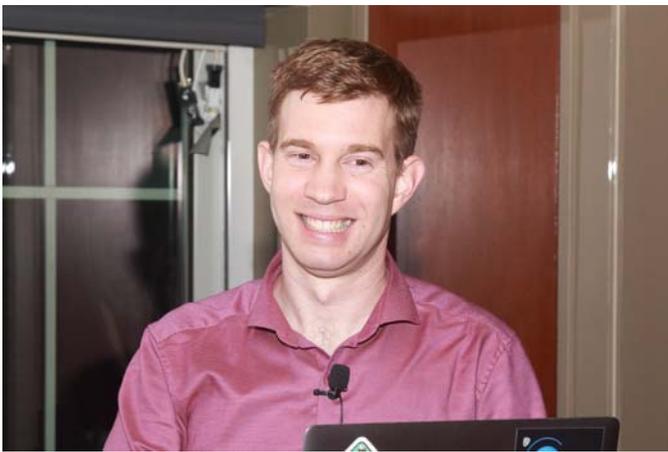
~ Tom McDonagh – President ~

Meeting Refreshment Assignment . . .

[2019 - 2020](#)

Nov. – Rich Nugent

October Meeting Minutes . . .



Dr. Peter Vereš *

Minutes of the 924th ATMob meeting held on October 10, 2019 at the Harvard-Smithsonian Center for Astrophysics in the Phillips Auditorium. President Tom McDonagh called the meeting to order at 8:00 pm.

- Secretary John Harrington read the minutes of the club's September meeting.
- Treasurer Eileen Myers gave the Treasurer's report and noted that ATMob members have been eagerly purchasing the new ATMob pin.
- Membership Secretary Chris Elledge presented the Membership Report, showing 256 total memberships covering 326 club members, but noted there are still 111 memberships to be renewed. The annual renewal period ended in September, so all club members are encouraged to renew their memberships promptly.
- Glenn Chaple presented the Observer's Report and noted the upcoming transit of Mercury on Monday, November 11th, beginning at 7:35 am EST. The Observers Challenge object for October is NGC 7448, an 11th magnitude spiral galaxy in Pegasus.

- Steve Clougherty gave the Clubhouse Report and noted that the September 14th work party focused on mowing the grass, filling in driveway potholes, and cleaning the 17-inch Dob. Also, Al Takeda photographed donated equipment and Barry Jensen worked to get the Mirror-o-Matic into operation. The next work party is set for Saturday, October 19th.

- Vice President Rich Nugent presented the Outreach Report and encouraged club members to come out and use the club telescopes, most of which are now working well. There are still relatively few requests for star parties this fall, no doubt due to the lingering risk of mosquito-borne eastern equine encephalitis. A star party was held with the Fivesparks arts community collaborative at Harvard, Massachusetts on October 4th, and another at New England SciTech on October 5th. Upcoming events include a star party on November 2nd for the Westford Cub Scouts at the Sportsmen's Club in Westford, and the Discovery STEM (Science, Technology, Engineering, and Math) event at the Acton-Boxborough Regional High School on November 4th.

- Old Business: None.

- New Business:

Treasurer Myers noted that the club is selling ATMob pins at a price of \$5 each. She then "passed the hat" to collect donations from club members for Atilla Danko, who customizes the [Clear Sky Chart](#) for the ATMob website. Finally, she announced that the Club now has an agreement with Amazon under which Amazon purchases made through smile.amazon.com will result in small charitable contributions to the club.

Corey Mooney announced that he fabricated several 3-D printed lunar craters and made them available for club members at the meeting.

A remembrance presentation was held to honor long-time club member Stelita Cronin, who passed away at age 77 this past August. Stelita grew up in Brazil, emigrated to the U.S., married Jack Cronin in 1961, and then went on to work as a nurse at Newton-Wellesley Hospital. Her life was one of achievement: she spoke six languages fluently, hiked the entire Appalachian Trail, and enjoyed sky diving. She also enjoyed baking and provided refreshments for club meetings for many years.

President McDonagh then introduced Dr. Peter Vereš of the Harvard-Smithsonian Center for Astrophysics (CfA) Minor Planet Center. The title of his talk is the "Current State of the Planetary Defense". Dr. Vereš is the co-discoverer of numerous asteroids and several comets as a result of his work with the Pan-STARRS project.

Dr. Vereš began his presentation by noting there are 180 known impact craters on Earth. He then gave a brief tour through the history of one of the most famous: Meteor Crater in Arizona. Grove Gilbert of the U.S. geological survey investigated the site and concluded it was volcanic in nature. Mining engineer Daniel

Barringer later suggested that it was a crater caused by an impact. He mined the site for the remnants of a large iron meteorite, but could find no substantial iron deposit. In fact, all but about 300,000 tons of the massive object was likely vaporized on impact. Researchers now believe that the meteor crater impactor was probably about 40 meters in diameter, as opposed to 20 meters for the Chelyabinsk object and perhaps 50 meters for Tunguska event object.

In light of the threat posed by large meteor impacts, in 1998 the United States Congress mandated NASA to find, by 2008, 90% of all objects crossing Earth's orbit ("Near Earth Objects" or NEOs) that exceeded one kilometer in size. NASA achieved this goal in 2010. In 2014, Congress again directed NASA to find, by 2020, all NEOs exceeding 140 meters in diameter, a task that NASA is still working on.

NASA has established the Planetary Defense Coordination Office (PDCO) to manage its ongoing mission of planetary defense. The organization's duties include the early discovery and warning of large meteor impacts, together with mitigating the effects of any impact and coordinating preparedness plans.

The hunt for NEOs is largely based on large ground-based surveys such as the former LINEAR and NEAT surveys, as well as today's Pan-STARRS and Catalina. There is also the NEOWISE space-based mission. These efforts will be greatly aided by the forthcoming Large Synoptic Survey Telescope (LSST), which will feature a vast 9.6° field of view and the ability to take survey images reaching down to 23rd magnitude.

NEO asteroids can be imaged in detail using large radar-mapping telescopes such as those at Goldstone and Arecibo, as well as by infrared telescopes such as the IRTF in Hawaii and the Spitzer Space Telescope. Characterizing the types of NEOs (stony, iron, etc.) is typically done via spectroscopy. Backyard telescopes can help with NEOs by obtaining light curves for them.

Space missions to help assess the asteroid threat include the ongoing OSIRIS-REx mission to return a sample of asteroid Bennu, as well as the future DART (Double Asteroid Redirection Test) kinetic impactor spacecraft, designed to show that an asteroid's motion in space can be modified.

President McDonagh thanked Dr. Vereš for his presentation and thanked Maria Batista for providing refreshments. The meeting was adjourned at 9:54 pm.

~ John Harrington, Club Secretary ~

Executive Board Meeting Minutes Summary . . .

October 3, 2019

- Finances: Treasurer Eileen Myers reported that ATMoB spending so far this year is in line with the budget.

- Clubhouse Projects: Purchase of a 3-D printer for the Clubhouse.
- Outreach: Kelly Beatty was authorized to purchase necessary materials to launch the Library telescope loaner program.
- Chris Elledge volunteered to perform the role of mirror making coordinator
- Donations Processing: The Board discussed the need for a process to receive equipment donations and sell surplus equipment.
- No votes were taken during the meeting.

A full report of the Executive Board meeting will be posted on the ATMoB website.

~ John Harrington, Secretary ~

Membership Report . . .

I am pleased to welcome our newest members: Judson Belmont, Peter Doherty, Deborah D'Ortona, Steven Scampini, Robert Scott, and Andrew Tratz.

As of October 28th, 2019 we have 288 memberships covering 378 members. This is broken down as follows:

- 128 Regular Members
- 102 Senior Members
- 4 Student Members
- 50 Family Memberships covering 140 Members
- 2 Guest Member
- 2 Honorary Members

111 Memberships are past due for renewal. Memberships that have not been renewed by December 1st will expire.

You can check if you need to renew and start your renewal process on the website at <https://www.atmob.org/renew>

You can also download the membership application from the website at <https://www.atmob.org/signup> by clicking on the "Download an application" link.

Donations are encouraged during membership renewal to help keep our club running smoothly, our clubhouse maintained, and our telescopes in good condition. Donations are tax deductible to the extent allowed by law. If you choose to pay by credit card please consider making at least a small donation since credit card companies take a few percent of your payment to the club.

Please contact me if you need any help with renewing or logging into the website.

~ Chris Elledge – Membership Secretary ~

Meeting Recordings . . .

The recording of ATMob meeting #924 is available on YouTube: https://youtu.be/cDEZt7sK_EA

I would like to thank Dr. Peter Vereš for giving his presentation and allowing us to record it.

This link is to the publicly available cut of the meeting recording. To view the original version of the meetings, please see the Announce Forum on the ATMob Website <https://www.atmob.org>

~ Chris Elledge – Membership Secretary ~

Clubhouse Report . . .



Cory Mooney testing the 3D printer *

October 2019 Clubhouse Report

The monthly work session was held on Saturday, October 19 under clear skies with a total of 24 volunteers on hand throughout the day.

Chris Elledge took the initiative and continued scraping and staining the side porch railing and posts with a couple of volunteers. The porch staining is now almost complete. Next Spring we will pick up the staining and finish the remainder of the Clubhouse.

Steve Clougherty and Pierre Fleurant handled the cleaning of the composting toilet. This job is done yearly following the annual picnic.

Dave Prowten skillfully reinforced the shelving in the first floor telescope room. The shelves can now handle the weight of telescope accessories.

The grinding and polishing rooms were cleaned and rid of surplus equipment. Work can now begin on mirror making projects. Barry Jansen tested the new Mirror-o-Matic machine. Later he helped out Greg Fontaine who is hand grinding a 6-inch mirror. We encourage members to come up to the new optical shop with their mirror making projects this Fall since we now have the facilities to fabricate optics. Chris Elledge volunteered

to coordinate optical shop activities. He and Mike Hill reviewed the inventory on hand and will order additional supplies for the shop.

Corey Mooney set up the new 3D printer and ran a demonstration during the afternoon. He will work out a few bugs in the machine and plans to permanently install it in our main first floor room very soon.

Bruce Berger and two volunteers installed new pulleys on the ARIO dome shutter. Bruce expects to have the shutter working very soon.

Thanks to Rich Nugent for cleaning the 17-inch Dob.

Many thanks to John Blomquist for bringing breakfast donuts, and to Eileen Myers and the volunteers who provided lunch for the crew and coordinated the clean up.

We would like to thank the following members who volunteered their time this month for a very productive work session: Maria Batista, Bruce Berger, Paul Cicchetti, Steve Clougherty, Alva Couch, Chris Elledge, Pierre Fleurant, Greg Fontaine, Barry Jansen, Alan Kaplan, Tom McDonagh, Vladislav Mlch, Corey Mooney, Keira Mooney, Eileen Myers, Rich Nugent, John Stodieck, Steve Scampini, Art Swedlow, Al Takeda, Bill Toomey and Stefan Vasile.

Clubhouse Saturday Schedule		
Nov 16	Eric Johansson	Rich Nugent
Nov 23	Nina Craven	Brian Maerz
Nov 30	Rich Nugent	Tom Wolf
Dec 7	Paul Cicchetti	John Reed
Dec 14	WORK PARTY # 12 ** Closed	
Dec 21	Phil Rounseville	Joe Wolfe
Dec 28	WORK PARTY # 13 ** New Year's Eve Party Prep	

** Closing time for the Clubhouse is determined by the work crew

Clubhouse Evening Schedule	
Friday Night Educational Videos	ATMoB-Announce
Saturday Night Observing	7:00 pm - ##
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty.	

~ Clubhouse Committee Chairs ~

~ Steve Clougherty, John Reed and Dave Prowten ~

Library Telescope "Mod Party" . . .

Come join in the fun when ATMob members gather to prepare our first set of Orion StarBlast telescopes for placement in area libraries. We'll meet at 10 am on Saturday, Nov. 23rd, at New England SciTech, which is located at 16 Tech Circle in Natick (directions: <https://www.nescitech.org/directions/>). Over roughly 2 hours, we'll make modifications to 10 Orion StarBlast telescopes, including adding permanent 8-24-mm zoom eyepieces, installing AA batteries for the red-dot finder,

simplifying the collimation screws, bundling instructions and observing aids, and so forth.

For more info on what's involved, check out <http://nhastro.org/ltp.php>. This will be a fun, social activity for club members of all experience levels. If you're interested in joining us, or have questions, please contact Kelly Beatty at k.beatty@comcast.net.

~ Submitted by Kelly Beatty ~

Observer's Challenge . . .

November 2019

NGC 246 - Planetary Nebula in Cetus

Mag: 10.9; Size: 4.6' X 4.1'



Image by Mario Motta***. North is up.

Image by Doug Paul***

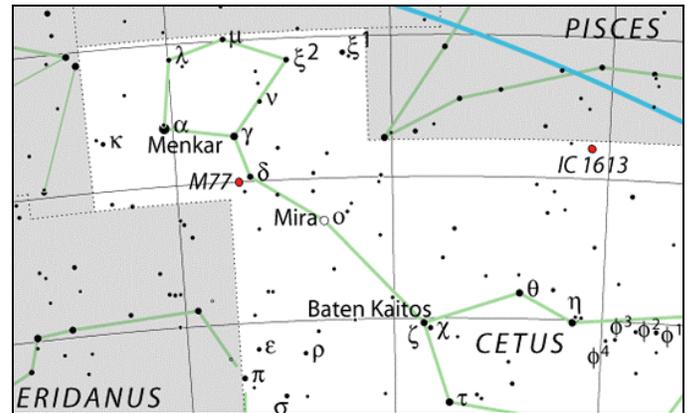
Our November Observer's Challenge, the planetary nebula NGC 246 in Cetus, challenges us in two ways. First, it's in a remote part of the constellation Cetus. You can log in its coordinates (RA 00h47m, Dec -11°28') on a GoTo scope or star-hop 5½ degrees from 3rd magnitude eta (η) Ceti. Second, it's faint! Some guides list its magnitude as 8.0, but that's its photographic magnitude. Visually, it's an 11th magnitude object – two magnitudes fainter than the Ring Nebula (M57). Worse yet, it's 3 times larger than the Ring, making it a low surface brightness target.

My recent (mis)adventures attempting to view NGC 246 with a 10-inch f/5 reflector attest to its elusiveness. The first time, I could make out what looked like a wide multiple star comprised of a handful of 11th magnitude components. Even with averted vision I was unable to detect any nebulosity. It was a moonless night, but skies were slightly hazy. I was unsuccessful on the next clear night. No haze this time, but lens fogging foiled my effort. As of this writing, I'm waiting for a clear, moonless, low humidity evening for a third attempt. I'll heed Boston ATMs Vice President Rich Nugent's advice to enhance NGC 246's visibility with an OIII filter. Because of the planetary's rather large size, I'll work with a medium magnification – perhaps 75-90X.

Due to its visual appearance, NGC 246 has been nick-named the "Pac-Man Nebula" or the "Skull Nebula". "Pac-Man" is

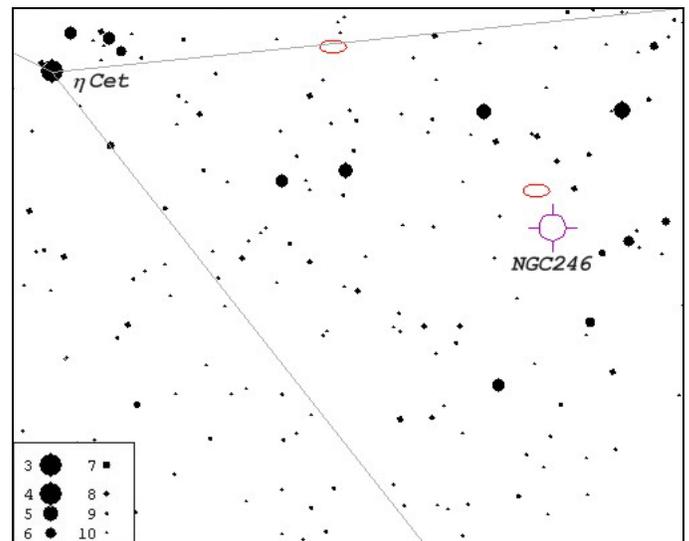
obvious in the accompanying image made by ATMoB member Doug Paul, while fellow ATMoB member Mario Motta's image shows the "Skull".

While you have NGC 246 in the eyepiece field, look a half degree NNE for the 12th magnitude galaxy NGC 255. William Herschel discovered this barred spiral on November 27, 1785 - the same evening he found NGC 246. It's plotted on the finder chart and appears in Doug Paul's wide-field image.



constellation-guide.com (IAU and Sky and Telescope)

NGC 246 lies about 1,600 light years away and spans an estimated 2.5 light years. NGC 255 is about 60 million light years distant.



astrosurf.com Field is 6 degrees square.

*** Mario Motta (AAVSO) 32-inch telescope, SBIG STL 1001E camera, processed in PixInsight. 80 minutes H-alpha, 80 minutes OIII filter, 20 minutes SII filter. Doug Paul (ATMoB) Canon 80D, 400mm f/2.8 lens, ISO 800, 93 subs x 30sec= 46.5 minutes.

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing and is open to everyone who is interested. Contributed notes, drawings, or photographs will be published in a monthly summary. Submit them to Roger Ivester (rogerivester@me.com). To access past reports, log on to <https://rogerivester.com/category/observers-challenge-reports-complete/>

~ Glenn Chaple ~

Outreach Report . . .

Fivesparks arts community collaborative:

On Friday, October 4th, ATMoB members provided telescopes for an evening of astronomy in Harvard, MA. Although attendance was sparse, folks enjoyed views of Jupiter, Saturn, and the nearly first quarter Moon through broken overcast skies. We missed a pass of the International Space Station due to clouds but had some amazing views of a military C-130 cargo plane and, through binoculars, its electroluminescent markings. While faint from the ground these green stripes help pilots maintain proper distance when flying in formation at night. Very cool! After the star party, several of us enjoyed a late-evening snack at a nearby Wendy's.

Thanks go out to Mike Brown, Corey Mooney, Eileen Myers, Rich Nugent, Al Takeda and Bob Toop for volunteering for the event. Additional telescopes were provided by non-members Bob Coit, Michael Maglothin and Marc Vilain. The organizers were very happy with the evening and I expect we'll be asked to return for future events.

Astronomy Day:

On Saturday, October 5th, Bob Phinney, Bruce Tinkler and Rusty Moore hosted an Autumn Astronomy Day at their New England Sci Tech facility in Natick, MA. Despite the conflict with AstroAssembly in Rhode Island, a number of ATMoB members were on hand with telescopes for afternoon and evening observing. Before sunset, we provided H-alpha views of the Sun, and were able to locate Venus, and Jupiter. The first quarter Moon was viewed using a single-element polarizing filter to enhance contrast between the Moon and the sky. Mike Francis (aka Galileo) gave a late afternoon presentation, and then offered views of the Moon through a replica of one of Galileo's telescopes. Poor Galileo...The view was high-powered, had a very small field of view with lots of chromatic aberration. If only we could set the "Way Back" machine to 1610 and time transport some 21st century equipment to him! Imagine his reaction!

After dark we offered views of the Moon, Jupiter, Saturn, and some double stars. The International Space Station made a nice pass across the northern skies, much to the delight of about 50 young Girl Scouts and their parents. The girls showed their excitement by jumping up and down while waving at and screaming hellos to the Station's six crew-members! Their reaction was very rewarding, indeed!

Thanks to Phil Levine, John Harrington, Corey Mooney, Rich Nugent, Joseph Rothchild, and Brian Zemba for contributing to a very successful Astronomy Day celebration!

Upcoming Star Parties . . .

Saturday, November 2: Westford Sportsman's Club, Westford, MA. We are expecting about 50 Cub Scouts and the parents. (Rain/cloud date: Saturday, November 30th)

Monday, November 4: Acton/Boxborough DiscoverSTEM 2019 event at Acton/Boxborough Regional High School

Monday, December 2: Center School, Stow, MA. We have been trying to return to this school for a couple of years. Large field, large crowds, hot chocolate served! (Rain/snow/cloud date: Tuesday, December 3)

Tuesday, December 3: A star party is being organized by member Peter Bealo. This event will be held in Plaistow, NH. More info will follow.

As always, in order for these events to be successful, we need your help. Please consider volunteering for any or all of these events. Register on the ATMoB Event Calendar so we'll have a head count. If you have any questions contact me or any of our star party coordinators via starparty@atmob.org

~ Rich Nugent - Vice President and Outreach Chair ~

ATMoB Research and Imaging Observatory Science . . .

On 15 October Bruce Berger, Tom McDonagh, and I met in the ATMoB Research and Imaging Observatory (ARIO) to verify we could use the observatory to obtain variable star data. Since the observatory does not yet have a working CCD camera with science grade filters, we decided to use my Canon DSLR on Tom's 105mm refractor for testing. We were able to generate image frames for our chosen target star V UMi along with darks, flats, and bias calibration frames. After the color channels were extracted and calibrated, the instrumental magnitudes were submitted to the AAVSO database since the AAVSO now accepts DSLR data. We plan to image an AAVSO standard field so we can generate transformation coefficients for this configuration and resubmit the transformed magnitudes.

Since this test was successful, our future goal is to replace my DSLR camera with a CCD camera with science grade filters to be used at least twice a week for the taking of variable star data, as weather conditions permit.

In addition to variable star photometry, we have identified three other scientific programs that we would like to implement using ARIO.

The first is to confirm TESS (Transiting Exoplanet Survey Satellite) exoplanet candidates by obtaining exoplanet transits. The second is to image newly discovered asteroids to help generate orbital elements. The third is to image asteroid stellar occultations. Based on past events, we estimate there should be twelve to fourteen events per year for which ARIO is in the path or close enough that a null result would have value.

We are looking for more club members who would be interested in participating in an ARIO science working group. If you are interested, please contact me. My contact information is in the ATMoB member database.

~ Submitted by Bill Toomey ~

2020 RASC Observer's Handbooks and 2020 Astronomy Calendars . . .

2020 RASC Observer's Handbooks and 2020 Astronomy Magazine Deep Space Mysteries Calendars will be available for purchase at upcoming monthly meetings at the CfA in Cambridge and at Clubhouse work parties. 50 copies of each have been received.

Copies of the 2020 Royal Astronomical Society of Canada (RASC) Observer's Handbook U.S. Edition may be purchased for \$24 each (which includes a \$2.05 donation to ATMoB). To read about the Handbook see

https://store.astroleague.org/index.php?main_page=product_info&cPath=12&products_id=149

2020 Astronomy Magazine Deep Space Mysteries Wall Calendars may be purchased for \$8 each (which includes a \$1.50 donation to ATMoB). You can see the Calendar at the Astronomy Magazine/Kalmbach Publishing Co website

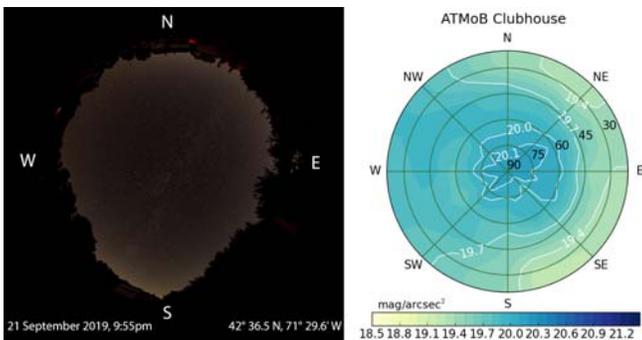
<https://myscienceshop.com/product/calendar/68194>.

Please pay with exact cash. Should you need to pay by check, please make the check payable to Eileen Myers.

Details can also be found in a longer announcement email posted on 10/19/19 to atmob-announce.

~ Eileen Myers, Treasurer ~

Sky Darkness Study at the ATMoB Clubhouse . . .



ATMoB observing field sky image and sky quality measurement by Nico Carver

On the night of Saturday, September 21, 2019, between 9:45 pm and 10:15 pm, I took a series of sky quality measurements on the South field at the ATMoB Clubhouse. These measurements were taken at what I hoped would be the darkest part of the night - about two hours after astronomical twilight and one hour before moonrise.

At zenith (90° or straight up), my Unihedron SQM-LU meter consistently reported 20.17 mag/arcsec² (MPSAS) or a naked-eye limiting magnitude (NELM) of 5.6. The worst horizon was to the South by Southeast where I was getting 19.3 MPSAS at 30° up and the best was to the West by Northwest where I was getting

19.8 MPSAS at 30° up. I used the [NixNox procedure](#) with a Unihedron SQM-LU meter and digital angle gauge to gather the data to create the map of the sky, and a circular fisheye lens on a DSLR to create the photo.

I will plan to take new measurements a few times per year to monitor the sky quality at the Clubhouse.

~ Submitted by Nico Carver ~

Visiting With Tal Mental . . .



(L-R) Art Swedlow, Monique Reed, Tal Mental, Eileen Myers, Phil Rounseville and John Reed. Image courtesy of Eileen Myers.

President Tom McDonagh informed club members that longtime ATMoB member Tal Mental is now a resident at Heritage Senior Living Center, an assisted care facility in Framingham. A small group of club members went to visit him on Sunday, September 15th. Tal was thrilled to have visitors. It took him a few minutes but he eventually recognized each of us. Tal's hearing is limited but he does hear. His speech ability is poor too, but his face was beaming. We took turns sitting right next to him and telling him our stories. Tal would enjoy having more visitors. We recommend bringing photographs with written descriptions of places and people he knows and showing how they look today, then leaving the photographs with him to look at later. We plan to return with a small scrapbook of photos of the Clubhouse. Tal was proudly wearing his new ATMoB pin when we left.

~ Submitted by Eileen Myers ~

Editor: * Photos by Al Takeda unless otherwise noted.

**December Star Fields DEADLINE
Sunday, November 24th**

**Email articles to Al Takeda at
newsletter@atmob.org**

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed November 12, 2019

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
99 College Ave
Arlington, MA 02474
FIRST CLASS

EXECUTIVE BOARD 2019-2020

PRESIDENT: Tom McDonagh (617) 966-5221

VICE PRES: Rich Nugent (508) 935-8158

SECRETARY: John Harrington (781) 325-3772

MEMBERSHIP: Chris Elledge (978) 456-3937

TREASURER: Eileen Myers (978) 456-3937

MEMBERS AT LARGE: Maria Batista (617) 347-3730

Alan Sliski (508) 494-7877

Al Takeda (508) 494-7877

PAST PRESIDENTS:

2015 - 18 Glenn Chaple (978) 597-8465

2012 - 14 Mike Hill (508) 485-0230

COMMITTEES

CLUBHOUSE: John Reed (781) 861-8031

Steve Clougherty (781) 784-3024

David Prowten (978) 369-1596

OBSERVING: Bruce Berger (978) 387-4189

NEWSLETTER Al Takeda newsletter@atmob.org

PUBLIC OUTREACH

COMMITTEE CHAIR: Rich Nugent starparty@atmob.org

STAR PARTIES: Bernie Kosicki

Laura Sailor

John Harrington

How to Find Us...

Web Page www.atmob.org

MEETINGS: Held the second Thursday of each month (September to July) at 8:00PM in the Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge MA. For INCLEMENT WEATHER CANCELLATION see www.atmob.org and check your email on the ATMOB-ANNOUNCE list.

CLUBHOUSE: Latitude 42° 36.5' N Longitude 71° 29.8' W

The Tom Britton Clubhouse is open every Saturday from 7 p.m. to late evening. It is the white farmhouse on the grounds of MIT's Haystack Observatory in Westford, MA. Take Rt. 3 North from Rt. 128 or Rt. 495 to Exit 33 and proceed West on Rt. 40 for five miles. Turn right at the MIT Lincoln Lab, Haystack Observatory at the Groton town line. Proceed to the farmhouse on left side of the road. Clubhouse attendance varies with the weather. It is wise to call in advance: (978) 692-8708.

Heads Up For the Month . . .

To calculate Eastern Saving Time (EST) from Universal Time (UT) subtract 5 from UT.

Nov 4 First Quarter Moon (Moonset at midnight)

Nov 11 Mercury transits the Sun. 7:35 - 13:04 EST

Nov 12 Full Moon

Nov 18 Leonid meteor shower peaks. 06 UT (01 EST)

Nov 19 Last Quarter Moon (Moonrise at midnight)

Nov 26 New Moon

Nov 28 Venus, thin crescent Moon and Jupiter conjunction

Dec 4 First Quarter Moon (Moonset at midnight)

Dec 12 Full Moon