



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. 30, No. 10 November 2018

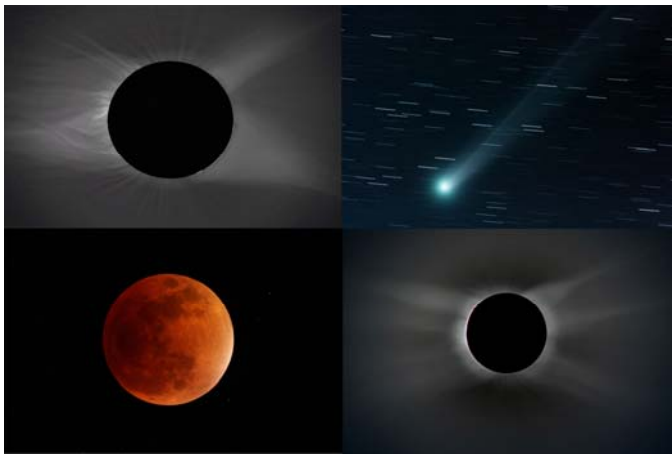
This Month's Meeting . . .

Thursday, November 8th, 2018 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

A Half Century of Cosmic Spectacles: My Personal Top-10 List



Images by Al Takeda *

Our guest speaker for the evening is Rich Sanderson, former Curator of Physical Science at the Springfield Science Museum. As an individual very knowledgeable in the field of astronomy, Rich had the fortune to be able to travel and experience many astronomically fascinating events. He has narrowed his reflections from a span of 50 year to a list of 10 unforgettable events. Rich will reconstruct the details of what made each event spectacular and memorable.

Richard Sanderson recently retired from a 19-year tenure as Curator of Physical Science at the Springfield Science Museum in Massachusetts, where he managed the Museum's observatory and Seymour Planetarium. Specializing in astronomy education and historical astronomy, he wrote a newspaper column for many

years and has been published in various astronomy magazines and journals. Together with Phil Harrington, he co-authored the 2006 book, *Illustrated Timeline of the Universe*. Rich has been a member of the Springfield Stars Club since 1973.

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 . . .

What a difference a month makes! We hosted a tremendously well received speaker in Dr. Jennifer Burt. She engaged the audience with her work on detecting and characterizing exoplanets using ground based radial velocity measurements, as well as an introduction as to what to expect from the TESS mission. I am grateful for her time and energy. The speaker list is rounding out quite nicely, with commitments to speak through May of 2019. Topics covered will include variable stars, black holes, galaxy formation simulations, early galactic clusters, and more TESS! Please continue to feel free to reach out to me with your ideas on topics that appeal to you and with names of potential speakers.

As you may be aware, I am a strong proponent of our star party outreach effort. I enjoy the interaction with the public and always learn something new about the heavens. I had the pleasure of attending the Waitts Mountain Park in Malden as well as the Townsend Cub Scout event. In both cases, local solar system targets captured the attention of the crowd. Saturn, Mars, and the Moon prove to be powerful draws for the crowds. It's at times like these I realize how little I know of our own solar system. Our local team of Star Party experts really do great job of educating and entertaining our clients. There was chatter of the Mare; Nubium, Imbrum, Serenitatis and Tranquillitatis the site of the famed, first manned lunar landing. The craters Copernicus, Kepler and Aristarchus stood out in the backdrop of the Mare. And finally, the small mountain Mons Piton, named after the earth summit of Mount Teide, captivated the attention and imagination of the crowd. I find it interesting to know Mount Teide is the site of a major astronomical observatory in the Canary Islands. There is a lot to learn and share at local Star Parties and I encourage you all to participate. I always get more than I give at these events.

I do hope to meet up with you all on the 8th of November at Phillips Auditorium in Cambridge for our monthly meeting. I have secured some swag for the now-running feature film, *First Man!* We have limited amounts of T-shirts, Mugs and promotional posters and will work to devise some clever way of distributing them fairly.

Clear Skies!

~ Tom McDonagh – President ~

October Meeting Minutes . . .



Dr. Jennifer Burt *

Minutes of the 913th ATMob meeting held October 11, 2018 at the Harvard-Smithsonian Center for Astrophysics in the Phillips Auditorium. President Tom McDonagh presided and called the meeting to order at 8:00 pm sharp.

President McDonagh welcomed Club members and opened the meeting by thanking Maria Batista for providing the refreshments.

- Secretary John Harrington read the minutes of the Club's September meeting and thanked Glenn Chaple for taking them in his absence.
- Treasurer Eileen Myers presented the Treasurer's Report.
- Chris Elledge presented the Membership Report, showing 335 total memberships (including four new memberships) covering over 400 Club members.
- Vice President Rich Nugent presented this month's observing challenge, which is to observe Venus during the day, noting that the planet's extremely thin crescent is large (one arc minute) and beautiful. He repeatedly stressed the importance of taking care to avoid inadvertently viewing the Sun, which could cause immediate vision damage or blindness.
- President McDonagh reported that the Executive Board met on Thursday, October 4th. He briefly gave a status update on the ATMob Research and Imaging Observatory (ARIO) renovations.
- Steve Clougherty gave the Clubhouse Report, noting that some 20 club members participated in the September 8th work party, and that 21 club members participated in the September 22nd work party. Among other work accomplished, the Ed Knight roll-off roof observatory and the barn were stained, and trees were trimmed near the dome for the 10-inch Meade telescope. At the most recent work party on September 27th, staining work was completed and the final mowing of the season was accomplished. Steve also put out a call for club members wishing to be trained in the use of the club's new 25-inch Dobsonian telescope.

- Vice President Nugent gave the Outreach Committee report and called for club members to participate in upcoming star parties, including:

Saturday, October 13th at Mount Waitts Park in Malden, MA

Monday, November 5th at Acton-Boxborough High School in Acton, MA

Tuesday, November 13th at Center School in Stow, MA

Friday, November 30th at Vining Elementary School in Billerica, MA

There will also be a training session on how to conduct a star party on Saturday, October 20th, to be held at the Clubhouse.

- Old Business: None.

- New Business:

Mario Motta gave a brief description of the replacement of the drive gear on his 32-inch relay telescope. The beautiful new 23" bronze drive gear was provided at a bargain price by the famed astronomical instrument maker, Edward R. Byers.

Paul Valleli mentioned that former member, Don Dilworth, is looking for a new home for his 16-inch relay telescope. This design employs a Mangin-type (rear surface) corrector.

President McDonough then introduced Dr. Jennifer Burt of MIT's Kavli Institute for Astrophysics. Dr. Burt spoke on the topic of "Discovering New Worlds with TESS." TESS is the Transiting Exoplanet Survey Satellite, a NASA space telescope designed to hunt for exoplanets that transit in front of their host stars.

Dr. Burt began her presentation by showing a brief video of the "Kepler Orrery," which showed all exoplanetary systems discovered by the Kepler space telescope mission to date. She stated that we now know of 3,500+ confirmed exoplanets. She then described the TESS mission, which will examine nearby stars (out to about 300 light years) for transiting exoplanets. The spacecraft carries four wide-angle cameras and will image almost the entire sky (approximately 85%). TESS will specifically hunt for exoplanet transits around M-type dwarf stars. TESS will in effect serve as a "finder scope" for future detailed imaging of nearby exoplanetary systems by NASA's forthcoming James Webb Space Telescope (JWST). The orbiting observatory has already found its first exoplanet, a "super Earth" orbiting the star Pi Mensa.

President McDonough adjourned the meeting at 9:49 pm.

~ *John Harrington, Secretary* ~

Meeting Refreshment Assignment . . . 2018

Nov. – Rich Nugent

Dec. – Tom McDonagh

Meeting Recordings . . .

The recording of ATMoB meeting #913 is available on YouTube: <https://youtu.be/yjZpVMXfaC0>

I would like to thank Dr. Jennifer Burt for giving her 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 <http://www.atmob.org>

~ Chris Elledge – Membership Secretary ~

Membership Report . . .

I am pleased to welcome our newest members Pete Lento, Patrick Murphy, and Angelo Valenti.

As of October 25th, 2018 we have 273 memberships covering 346 members. This is broken down as follows:

- 131 Regular Members
- 95 Senior Members
- 4 Student Members
- 42 Family Memberships covering 115 Members

82 renewals are still due. Memberships that are not 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 <http://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 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 ~

Clubhouse Report . . .

There was no Clubhouse Work Party in October. The work session was rescheduled to Saturday, November 3rd.

Important Notice: Please check your email on the ATMoB-ANNOUNCE list for mirror making sessions. A revised schedule will be released soon.

Clubhouse Saturday Schedule		
November 3	WORK PARTY # 11 ** Joe Henry + Paul Courtemanche	
November 10	Mike Hill	Brian Maerz
November 17	Eric Johansson	Tom McDonagh
November 24	WORK PARTY # 12 ** Karl Dean	

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

Clubhouse Evening Schedule	
Friday Night Educational Videos	7:00 pm - 10:30 pm #
Saturday Afternoon Mirror Making	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.	

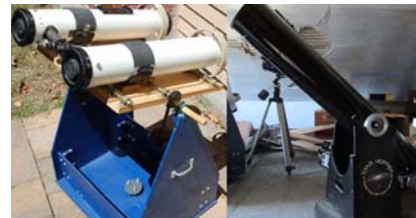
~ Clubhouse Committee Chairs ~

~ Steve Clougherty, John Reed and Dave Prowten ~

Telescope Auction . . .

Check the Members tab at the club website for used surplus telescope auctions. There are two offerings:

- A binocular telescope
- 6" Newtonian Dob (needs some parts).



Auction completion dates Nov 13 and 14.

Any questions send a note to kosicki@verizon.net

~ Submitted by Bernie Kosicki ~

RASC and Astronomy Calendars . . .

At the upcoming ATMoB meeting on Thursday, Nov. 8th the following will be available for purchase:

1. *The Royal Astronomical Society of Canada (RASC) Observer's Handbook 2019*, U.S. Edition will be available at \$22 each (which includes a \$1.32 donation to ATMoB).

To read about the handbook see <https://www.rasc.ca/handbook>

2. The *2019 Astronomy Magazine Deep Space Mysteries* calendar will be available at \$8 each (which includes a \$1.50 donation to ATMoB).

To view the calendar see it at the *Astronomy Magazine*/Kalmbach Publishing Co website <https://myscienceshop.com/product/calendar/68189>

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

~ Eileen Myers, Treasurer ~

October Outreach Report . . .



Setting up scopes at the Mount Waitts Star Party. Image by Laura Sailor

October was a very busy month for star parties! Here's a brief summary.

On the 13th, quite a few of us hiked up Mount Waitts in Malden, MA to set up scopes along with Denia Taylor from Popscope and Brewster LaMacchia and two other members of the North Shore Amateur Astronomy Society. The skies cleared beautifully and, despite an important Red Sox game, 100 or so residents came out to enjoy storytelling, music, and astronomy. As twilight deepened we were able to show folks an especially prominent display of the Belt of Venus followed by telescopic views of Jupiter, Saturn, and Mars. Even the international Space Station graced us with a nice pass. Later, as the delightfully soft music wafted across the observing area, we offered views of some bright double stars, the Pleiades, and the Andromeda Galaxy. ATMoB members on hand were: Maria Batista, Chris Elledge, John Harrington, Julie Kaufmann, Tom McDonagh, Corey Mooney, George Paquin, Laura Sailor and Rich Nugent. It turned out that astronomy was a good choice that night...the Houston Astros beat the Sox 7-2!

On the 16th, Glenn Chaple and I were joined by Laura Sailor and Tom McDonagh at a small star party for a group of cub scouts in Dunstable, MA. Held in the sprawling back yard of a neighbor, about 20 parents and cubs were treated to views through small scopes. Jupiter was low in the west and a bit compromised by the atmospheric effects, but Saturn showed crystal clear and was the highlight of the evening. For many it was their first view of the ringed-planet...surely an unforgettable sight! Clouds began to cover the sky as the campfire was dying and, as it was a school night, the den needed to head home. Our hosts rewarded us with delicious cookies and chocolates and hoped we'd be willing to return another time!

Laura Sailor and I scheduled a star party training session on the 20th. This coincided with the annual International Observe the Moon Night (InOMN). We had only two members in attendance: Brian Zelma and Nitin Aggarwal. The training session never took off because one of the attendees was already skilled in the ways of star parties and the other went outside to observe the moon.

Oh well. Let's make next year's InOMN a member event at the Clubhouse. I think it's time to bring back lunar observing!

On the 24th, Glenn Chaple, Pierre Fleurent, Bob Toop, Corey and Keira Mooney, Laura Sailor, and I set up scopes at the MIT Haystack Observatory in support of their open house event. Bruce Berger and Brian Zelma were there for the tour but stopped by to say hello and mingle with the crowd. The clouds were intermittent but some of the folks arriving early were treated to views of Saturn. After the event we showed off Mars and the full moon. Tycho, with its dark halo and extensive system of rays was a highlight. I estimate that about 50 people were in attendance and the folks up the hill were grateful for our presence.

Finally, on the 27th, Eileen Myers, Al Takeda, and I journeyed to the Churchtown Dairy in Hudson, NY to support member Barbara Bosworth. About 50 people were in attendance as Barbara gave a wonderful presentation about her new book, *The Heavens*. The book showcases some of Barbara's terrestrial and astronomical photography. She writes about how her dad influenced her interest in astronomy: "At times we stood still for an hour or more to watch for shooting stars. We had no agenda. It was all about amazement at a sky full of stars. With this sense of wonder, I began making photographs of the Heavens. In these days of the Hubble Telescope and its spectacular imagery from deep space, I wanted a reminder of the mystery of our own night sky."

The weather forecast was for cloudy skies with a cold rain, so we planned accordingly. After Barbara's presentation, Al set up one of his astro-imaging rigs and explained the process of acquiring and processing images.



Al Takeda at the Churchtown Dairy. Image by Gary Sheffer.

Eileen brought several tables worth of display. On one she presented a wide variety of star charts to show how amateurs use the progressively detailed maps as they move from beginner to advance amateur. She also explained how we identified objects in Barbara's photographs. On another table she demonstrated mirror grinding, and a number of attendees gave it a try.

I set up a Meade 125 ETX telescope focused on my iPad which was showing a high definition image of the moon set for the time and date of the event. (It took two extension tubes to get the scope to focus in the room we were in!) Folks mingled, enjoyed refreshments, and spent time at each of our stations.

There was only one youngster there – a young lady probably about 12 years old. She was particularly interested in pushing some glass around, so Eileen let her try her hand at grinding. Then, she spent a very long time soaking up the view of the moon through my telescope. She didn't speak or ask questions...she just looked. I think we may have inspired a new amateur astronomer and that made the long trip especially rewarding! After all, that's why we do this sort of thing, right?

We were especially grateful for the hospitality of Barbara's assistant, Emily and the entire Sheffer family for providing food and lodging for us!

Looking forward, there are several Star Parties scheduled for November:

- Acton - Boxborough, Acton, MA on November 5th
- The Center School Stow, MA on November 13th
- The Vining Elementary School, Billerica, MA on November 30th

Details and registration (recommended so we have a head count) can be found on the ATMob website's event calendar. Please consider helping out! Thanks in advance! As always, if I've missed anyone please let me know and I'll include it in the December report.

~ Rich Nugent - Outreach Committee Chair ~

Sky Object of the Month . . .

November 2018

(Courtesy LVAS Observer's Challenge***

NGC 147

Dwarf Galaxy in Cassiopeia in Cepheus

Magnitude: 9.5, Size: 13' X 8'



NGC 147 (top) and NGC 185 (lower) omicron Cassiopeiae is at bottom, center.
North is to the left (www.astrosurf.com)

This month's Observer's Challenge, the dwarf elliptical galaxy NGC 147 in Cassiopeia, has been glimpsed with 7X35 binoculars yet can be a challenge for a 10-inch scope. Its 9.5 visual

magnitude sounds promising, but the light is spread over an area 13 by 8 arc-minutes in size. The situation is similar to that of Barnard's Galaxy (NGC 6822), briefly mentioned last September and featured as the August, 2014, Observer's Challenge.

Save NGC 147 for the clearest, darkest night possible and be sure your eyes are adequately dark-adapted. Begin by training your scope on 4th magnitude omicron (o) Cassiopeiae, located in the extreme southern part of the Queen and just 7° above the Andromeda Galaxy. Once you've centered omicron in the eyepiece field, work your way slowly westward. Just a degree from omicron, you should spot a slightly oval smudge of light. Don't put a notch in your telescope tube yet! This is NGC 185, also a dwarf galaxy and similar in brightness and size to NGC 147. However, it's more concentrated and has a higher surface brightness. NGC 147 is far less accommodating! Continue onward another degree and, if you're lucky, you should spot an extremely faint and elongated glow. This is NGC 147! Now you can make your notch (or preferably make an entry in your observing logbook).

If you fail to see NGC 147, don't give up. Conditions might prove more favorable on the next clear night. You can take solace in knowing that William Herschel surveyed this area in 1787. He spotted NGC 185 but failed to see NGC 147. His son, John, found the latter 42 years later.

NGC 147 and NGC 185 are satellites of the Andromeda Galaxy and, as such, are part of the Local Group. They are located 2.0 and 2.3 million light years away, respectively.



astronomyconnect.com (image created with SkyX by Software Bisque)
North is to the left

***The purpose of the LVAS Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested, and if you are able to contribute notes, drawings, or photographs, the LVAS will be happy to include them in their monthly summary. If you would like to contribute material, submit your observing notes, sketches, and/or images to either [Roger Ivester](mailto:Roger_Ivester@me.com) ([rogerivester@me.com](mailto:Roger_Ivester@me.com)) or [Fred Rayworth](mailto:Fred_Rayworth@fredrayworth.com) ([fred@fredrayworth.com](mailto:Fred_Rayworth@fredrayworth.com)). To find out more, click on the following links: [LVAS Observer's Challenge past reports](#) and/or visit the [Las Vegas Astronomical Society website](#).

~ Glenn Chaple for the LVASS ~

Editor: * Photos by Al Takeda unless otherwise noted.

December Star Fields DEADLINE

Sunday, November 25th

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

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed November 4, 2018

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

EXECUTIVE BOARD 2018-2019

PRESIDENT: Tom McDonagh (617) 966-5221

VICE PRES: Rich Nugent

SECRETARY: John Harrington

MEMBERSHIP: Chris Elledge (781) 325-3772

TREASURER: Eileen Myers (978) 456-3937

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

Alan Sliski

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 Standard Time (EDT) from Universal Time (UT) subtract 5 from UT.

Nov 4 Daylight Saving Time Ends

Nov 6 Mercury at Greatest Eastern (Evening) Elongation (23 degrees)

Nov 7 New Moon

Nov 12 Pluto 0.9 degree S. of Moon - Occultation

Nov 15 First Quarter Moon (Moonset at midnight)

Nov 18 Leonid meteors peak

Nov 23 Full Moon

Nov 30 Last Quarter Moon (Moonrise at midnight)

Dec 7 New Moon