STAR FIELDS

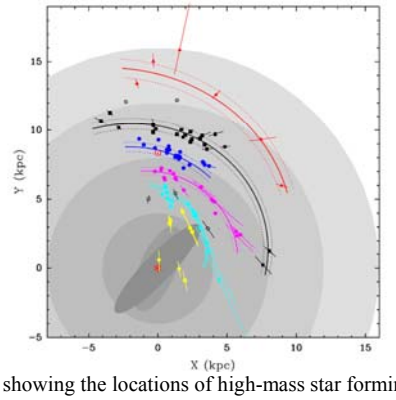
Newsletter of the
Amateur Telescope Makers of Boston
Including the Bond Astronomical Club
Established in 1934
In the Interest of Telescope Making & Using

Vol. 30, No. 4 April 2018

This Month's Meeting . . .

Thursday, April 12th, 2018 at 8:00 PM
Phillips Auditorium
Harvard-Smithsonian Center for Astrophysics
Parking at the CfA is allowed for the duration of the meeting

Mapping the Milky Way



Milky Way showing the locations of high-mass star forming regions.
Image: Reid, Blitz & Spergel 1991; Hammersley et al. 2000; Benjamin 2008

Over 2000 years ago Hipparcus measured the distance to the Moon by triangulating from two locations across the Mediterranean Sea. However, determining distances to stars proved much more difficult. Many of the best scientists of the 16th through 18th centuries attempted to measure stellar parallax, not only to determine the scale of the cosmos but also to test heliocentric cosmologies. While these efforts failed, along the way they lead to many discoveries, including atmospheric refraction, precession, and aberration of light. It was not until the 19th century that Bessel measured the first stellar parallax.

Distance measurement in astronomy remained a difficult problem even into the early 20th century, when the nature of "spiral nebulae" was still being debated. While we now know the distances of galaxies at the edge of the Universe, we have only just begun to measure distances accurately throughout the Milky Way. Using the Very Long Baseline Array of radio telescopes, we now can achieve parallax accuracies of 10 micro-arc seconds!

Dr. Mark J. Reid will present new results on parallaxes and motions of star forming regions from the BeSSeL Survey (The Bar and Spiral Structure Legacy Survey). These measurements address the nature of the spiral structure, size, rotation speed, and mass of the Milky Way.

Dr. Reid received his PhD in Astronomy and Planetary Science from the California Institute of Technology in 1975 and currently is a Senior Astronomer at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts. He is a world leader in the development of the technique of Very Long Baseline Interferometry and is widely recognized as the father of ultra-high precision radio astrometry. Reid has worked on a wide variety of astrophysical topics from the formation and evolution of stars, to black holes, to the structure of the Milky Way. He has received numerous awards, including a Senior Award from the Alexander von Humboldt Society, the Beatrice Tinsley Prize of the American Astronomical Society, and the Jansky Prize Lectureship of Associated Universities, Inc.

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 . . .

A time-honored adage says, "You can lead a horse to water, but you can't make it drink." Such seems to be the case when it comes to engaging public interest in astronomy. We can encourage family and friends to join us in a visit to a local planetarium, astronomy lecture, or public star party, but we can't expect them to drink in the essence of the experience.

Perhaps we can't get one horse to drink, but if we work with an entire herd maybe one or two will. Such is the reasoning behind large-scale astronomy outreach events. Host a star party for a few dozen school children, and you might plant a few seeds that will lead to a lifelong interest in astronomy. Present an astronomy talk at a local library or set up an astronomy-related display at a public event, and you might even net a few new ATMoB members.

Astronomy Day, slated for Saturday, April 21st, is a prime time to schedule outreach events. Unfortunately, the date coincides with the 27th annual NEAF Convention, and a number of ATMoB members will be out of town. Nevertheless, I've reserved a conference room at the Haystack Observatory to hold an Astronomy Day event for the local community. Included will be an informational talk on backyard astronomy with the unaided eye, binoculars, and telescopes, followed by (weather permitting) an outdoor observing session. I invite any of you who don't plan to go to NEAF to join me.

At the April meeting, we'll elect a team of 3 ATMoB members to the Nominating Committee. The "NomCom" will prepare a full slate of Board members to be voted on at the June meeting. In particular, we'll need candidates to run for President, Vice President, and Secretary.

Clear Skies,

~ Glenn Chaple – President ~

March Meeting Minutes . . .

Andrew Chael. *

Summary of the ATMoB meeting held March 8, 2018 at the Harvard-Smithsonian Center for Astrophysics in the Phillips Auditorium. Club President Glenn Chaple called the meeting to order at 8:00 pm.

- The Secretary's Report was read by Phil Levine
- The Treasurer's Report was presented by Eileen Myers
- The Membership Report was presented by Chris Elledge
- Glenn Chaple and Rich Nugent presented the Observing Report
- Steve Clougherty presented the Clubhouse Report
- Glenn Chaple, Steve Clougherty, and Tom McDonagh presented the Telescope Making Committee Report
- Rich Nugent presented the Outreach Committee Report
- Announcements:
  Steve Clougherty informed the membership that the club has finalized the purchase of the 25-inch Star-Splitter telescope from Steve Mock.

  Steve thanked Bernie Kosicki, Tom McDonagh, and Maria Batista, for their work organizing the sale of surplus club telescopes to the membership. Maria created the new bidding section on the ATMoB website. Proceeds from the sale of surplus telescopes will go to the club.

  Steve Clougherty, Glenn Chaple, and Tom McDonagh updated the membership on the recent establishment of the Telescope Making Committee. It was noted that Mike Mattei is at the Clubhouse every Saturday to teach mirror making.

  Glenn Chaple gave an update on the new Outreach Committee, chaired by Rich Nugent, with Bernie Kosicki, John Harrington, and Laura Sailor as committee members. The goal is to promote astronomy by participating in local star parties and assisting organizations such as POPSCOPE, or to give astronomy related classes/lectures to area schools/libraries. Bob Toop and John Sheff indicated they are currently teaching astronomy courses in local communities.

  Glenn Chaple made a request for members (6 needed) to volunteer to serve on a nominating committee, as there will be three open Board positions: Club President, Club Vice-President, and Club Secretary.

  April 21 is Astronomy Day at M.I.T. Haystack in Westford. ATMoB volunteers are needed.

- Old Business: none
- New Business: none

Glenn Chaple introduced the guest speaker for the evening, Andrew Chael, a graduate student in Physics at Harvard University. The title of Andrew's talk: "Imaging a Black Hole with the Event Horizon Telescope".

Andrew started with a historical outline of discoveries important to the understanding of Black Holes, describing the connection between gravity, mass and light. Albert Einstein, Karl Schwarzchild, David Hilbert, Subrahmanyan Chandrasekhar and Roy Kerr were prominent contributors to our current understanding of Black Holes. The Black Hole at the center of our own galaxy, located in the area of Sagittarius A, although estimated to be only 1 AU (astronomical unit) in size, is computed to be about 4 million solar masses. Black Holes, though comparatively small in size, are thought to be very important in the structure, evolution, and formation of galaxies.

Andrew discussed key concepts such as accretion disk energy, quasars, and gravitational waves. Visualizing a Black Hole directly presents major problems due to the impact of massive BH gravity on light. Andrew discussed the Event Horizon Telescope (EHT), which consists of 7 telescopes at various locations around the world. The EHT should provide the best view of a Black Hole by utilizing data in various wavelengths from the "shadow" region surrounding it. Andrew discussed how the VLBI (Very Long Baseline Interferometry) array, with a Fourier Transform analysis of EHT data, will circumvent the diffraction light limitations of traditional telescopes.

Various computer models of Black Holes were presented. Andrew's hope is that the Event Horizon telescope will provide data to validate these simulations sometime later this year.
https://astronomy.fas.harvard.edu/news/shep-doelman-imaging-black-holes-event-horizon-telescope

Refreshments were provided by Glenn Chaple

Glenn Chaple adjourned the meeting at 9:45 pm

~ Phil Levine - Secretary ~

Meeting Recordings . . .

The recording of ATMoB meeting #907 is available on YouTube: https://youtu.be/bVBIGsJxSV4

I would like to thank Andrew Chael for allowing us to record his presentation "Imaging a Black Hole With the Event Horizon Telescope".

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 Rusty Moore, Stephen Moore, and Raquel Lopez and family.

As of March 26th, 2018 we have 314 memberships covering 388 members. This is broken down as follows:

- 163 Regular Members
- 101 Senior Members
- 9 Student Members
- 37 Family Memberships covering 111 Members
- 4 Guest Members

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

~ Chris Elledge – Membership Secretary ~

Clubhouse Report . . .

Testing the emergency roof closing system pulley. (L-R) Dave Prowten, John Maher, John Hinz, Steve Clougherty and John Blomquist. *

March 2018 Clubhouse Report

The first of two Full Moon Work Parties was held on Saturday March 3rd, starting at 10 AM. Temperatures hovered around 40 degrees F under cloudy skies. Twenty three members participated in this effort.

Last month's basement work proved successful in moving water toward the drain. Hugo A. and his son Diego, along with John S. continued the cleaning process and will continue at the next work party.

Work on the larger mirror holder in the Test Tunnel was continued by Barry J. and Mike M.

Repairs to the 25-inch Dob electrical box and focuser assembly were made. Measurements for a new shroud cover were also completed.

A 3-dimensional conceptual study for an emergency closing winch system for the Ed Knight Observatory roll-off roof was completed by the team led by Dave P., John M., and Steve C.

An inventory and review of telescopes was undertaken by telescope committee members Glenn C., Bern K., Tom M., Al T., and John S. The purpose is to identify those scopes that are surplus to our club's needs and will be made available for purchase by our membership.

Lunch was provided by the team of Eileen M., Art S., Dick K. and John R.

Thanks to: Diego & Hugo Alvarez, Bruce Berger, John Blomquist, Barbara Bosworth, Glenn Chaple, Paul Cicchetti, Steve Clougherty, Jim Gettys, Barry Jensen, Dick Koolish, Bern Kosicki, John Maher, Mike Mattei, Tom McDonagh, Eileen Myers, Dave Prowten, John Reed, Phil Rounseville, John Stodieck, Art Swedlow, Al Takeda and Joe Wolfe.

March 17, 2018

A special snow removal work session was conducted on Saturday, March 17th. Starting at 11 AM we had a temperature of 36 degrees F under windy and clear skies. Sixteen members cleared roofs with snow rakes, shoveled, dug, or snow-blowed and chopped ice that remained piled up from previous snowfalls including the St. "Patty's" day storm.

Further fit and testing of the new test tunnel mirror holder was conducted by Barry J. and Mike M.

Barry Jensen with the new test tunnel mirror holder. *

We all devoured the three 19" Market Basket pizzas in short order. The crew then cleared all pads and observatories to be ready for the visiting Girl Scout troop working on their Astronomy and Space related Merit Badges. Many stayed to observe well into the night.

Thanks to Bruce Berger, Barbara Bosworth, Paul Cicchetti, Jim Gettys, John Hinz, Barry Jensen, Ed Los, John Maher, Mike Mattei, Rusty Moore, Dave Prowten, John Reed, Sergio Simonavich, John Stodieck, Al Takeda and Bob Toop.

March 31, 2018

The second March work session started at 9:30 AM on Saturday, March 31st, one hour after the second March full "Blue" Moon. The temperature was a chilly 46 degrees F under clear skies.

This day was perfect for observing the Sun using Paul C.'s hydrogen-alpha solar filtered telescope. Slav Mlch trained his scope on the planet Venus and later changed to his hydrogen-alpha solar scope. While observing a tiny, lone sunspot on the Sun's surface, we noticed that the area was turning bright. We were witnessing a flare! Flares are unpredictable and it is a rare treat to see one.

Work proceeded on obtaining more Far Barn floor storage space.

Pulley hardware was installed in the Ed Knight Observatory to provide an emergency roof closing system.

The basement progress was evaluated and plans laid for continued upgrade at the April Work Session.

During the afternoon several visiting potential new member families were given a Clubhouse tour.

Another review of donated telescopes, considering condition and club needs, took place and will be reported elsewhere.

The exact recipe for Bailey Hill sauce was described to the lunch crew. Thanks to Maria B., John S., Paul C., Art S., Dick K. John R. and others for the lunch prep and clean up. Next month we'll resume hot dogs, burgers & fried chicken.

Thanks to the 22 members who signed in for this work party: Maria Batista, Bruce Berger, John Blomquist, Paul Cicchetti, Steve Clougherty, Chris Elledge, John Hinz, Eric Johansson, Dick Koolish, John Maher, Mike Mattei, Tom McDonagh, Vladislav Mlch, Dave Prowten, John Reed, John Stodieck, Art Swedlow, James Synge & Al Takeda. We were later joined by Julie, Christy & Dan Sage for Julie's mirror grinding session.

The next work session at the Clubhouse will be held on Saturday, April 28th.

Important Notice: Mirror making sessions will now take place on **Saturday afternoon's beginning at 1:00 pm. Other times may be scheduled. Check your email on the ATMoB-ANNOUNCE list**.

~ Clubhouse Committee Chairs ~
~ Steve Clougherty, John Reed and Dave Prowten ~

Clubhouse Saturday Schedule		
April 14	Tom McDonagh	Bill Toomey
April 21	John Maher	Dave Siegrist
April 28	**WORK PARTY # 5 **** Paul Courtemanche	
May 5	Nina Craven	Al Takeda
May 12	Steve Clougherty	Jim Gettys
May 19	Paul Courtemanche	Eric Johansson
May 26	**WORK PARTY # 6 **** Karl Dean	
June 2	Tom McDonagh	John Stodieck
June 9	Dave Prowten	Eileen Myers
June 16	Paul Cicchetti	John Reed

**** 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	**1:00 pm - ##**
Saturday Night Observing	7:00 pm - ##

Closing time is determined by the organizers
Closing time is determined by the "A" members on duty.

Saturday afternoon mirror making schedules will be posted to the ATMOB-ANNOUNCE email.

Note: The Clubhouse is closed on the 2nd Thursday of the month for our monthly meeting in Cambridge.

Due to inclement weather conditions on Saturday evenings, the "A" members on duty may elect to close the Clubhouse. Please call the Clubhouse at (978) 692-8708 or check for email messages posted to ATMOB-ANNOUNCE.

PANOPTES Booth at NEAF . . .

ATMoB member, James Synge, will be helping to man a booth promoting Project PANOPTES (Exoplanet detection) at the NEAF Convention in April. Josh Walawende of the Keck Observatory will be delivering an updated PANOPTES talk at both NEAIC and NEAF.

James gave a talk to the club about his prototype PANOPTES camera system and wrote an article, "Let's Hunt Exoplanets Together" in the May 2017 *Star Fields.* He also won a Stellafane 3rd Place Special Award (Mechanical First Scope) for his PANOPTES Exoplanet detector in 2017.

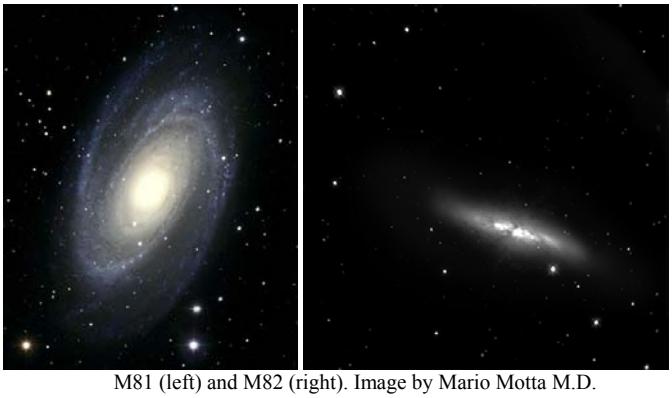
Please visit James at the PANOPTES booth to learn more and to spread the word about this project. For further information visit James' blog or email him at james.synge@gmail.com.

~ Submitted by James Synge ~

Sky Object of the Month . . .

April 2018
Courtesy LVAS Observer's Challenge***
Messier 81 and 82 – Galaxy Pair in Ursa Major

Messier 81 ("Bode's Galaxy; Magnitude 6.9; Size 27' X 14')
Messier 82 ("Cigar Galaxy"; Magnitude 8.4; Size 11' X 4')



M81 (left) and M82 (right). Image by Mario Motta M.D.

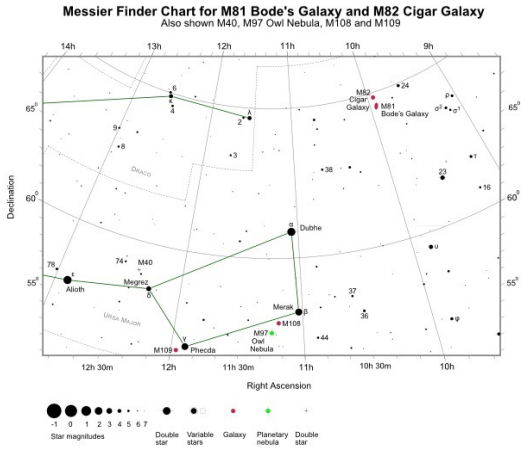
When preparing a list of sky objects to show with my telescope at public star parties, I tend to avoid galaxies. To the uninitiated observer, a galaxy has the appearance of a hazy blob - for all the world, nothing more than fog remaining when someone breathed on the eyepiece. Even the great Andromeda Galaxy (Messier 31) fails to awe the first-time viewer.

I make an exception where the galaxies M81 and M82 are concerned. Sure, they're still "faint fuzzies," but the two are just 38 arc-minutes apart and appear together in the same low-power field. The sight of an oval-shaped patch (M81) next to a spindle-shaped one (M82) is intriguing at the very least.

M81 and M82 lie about 12 million light years distant. M81 is a spiral galaxy whose 90,000 light year diameter makes it slightly smaller than our Milky Way. Small aperture telescopes reveal the nucleus, while a 6-inch instrument will begin to show hints of the spiral arms. M82 is smaller, with a diameter of some 37,000 light years. For many years, M82 was thought to be an irregular galaxy. Recent studies hint at a spiral structure, the irregular appearance a result of an accelerated amount of star formation perhaps due to the gravitational influence of M81.

To locate M81 and M82, center your finderscope on an area marked by a line drawn from Phecda (gamma [γ] Ursae Majoris) through Dubhe (alpha [α] Ursae Majoris) and extended an equal distance beyond. A careful sweep with the finderscope or the main scope with a low-power eyepiece in place should reveal the two.

In the spring of 1993, a supernova was discovered in M81, reaching a peak magnitude of 10.5. In January, 2014, M82 got its turn, producing a supernova (2014J) that also reached magnitude 10.5.



freestarcharts.com

If you live in a truly dark sky area (we're talking about a place with a limiting magnitude in the order of 7.0!), try to see if you can pick out M81 with the unaided eye. A handful of amateur astronomers have accomplished this eagle-eyed feat, most notably Astronomy columnist Stephen James O'Meara.

M81 and M82 were discovered by the German astronomer Johann Elert Bode on December 31, 1774, then independently by the French comet-hunter Pierre Méchain 5 years later. Méchain reported the pair to his contemporary Charles Messier, who observed and cataloged them in early 1781.

***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 (rogerivester@me.com) or Fred Rayworth (fred@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 ~

Mario Gives Light Pollution Talk in Canada . . .

After my debate with the Illuminating Engineering Society (IES) at the California "Strategies in Light / The LED Show" in February, I was also invited to present my American Medical Association (AMA) report and reasons for low blue lighting to the "IES Roadway Lighting Committee (RLC)" meeting in Quebec, Canada on March 9th. The IES sets road standards with the U.S. Department of Transportation (DOT), and up to now have been steadily pushing for 4000K lighting.

The IES Roads Committee had 60 members present with a few attending on-line. This presentation was videotaped so I am hoping to get a copy. I am told that my presentation went over very well, and may have "moved the needle".

After a 30 minute presentation we had a frank 1 hour Q&A period where it became clear that although there were some wanting to stick to 4000K, many, if not most seemed to appreciate the discussion and openly stated that they agreed with

my comments. I then left the meeting and for the rest of the day, I am told, they discussed my presentation and had a frank discussion about it. I was also informed by some insiders that I may have moved the Committee's stance quite a bit. A subcommittee was set up to discuss the entire issue, and will then present to the full committee in the near future and decide if "new" IES standards will be developed.

I am very hopeful knowing that Ronald Gibbons from Virginia Tech is on that subcommittee as he has long advocated that most light installations could be 3000K and save 4000K for select applications.

What surprised me is that many of the committee members actually knew very little of the 2016 AMA report and simply relied on the IES leadership to tell them what it said and how to respond. That became painfully clear in the Q&A period. There was one member who repeatedly asked "since the blue does not bounce off the pavement and thus not seen by the eye then what difference does it make if the lights produce blue." I replied; "what about the direct to human light that is glare and the fact that the blue travels far and wide and can be seen up to 50 miles away?" It took several tries to get him to expand his mind and understand this is more than just the light that hits the pavement. On the other hand there were many in the room that spoke up and stated loudly that my presentation is exactly what they were advocating for years now but felt ignored by the "leadership". One PhD from Colorado who teaches there said he has been advocating for exactly what I presented to the IES for years now, and that my presentation will embolden his group to push harder and be heard. Many were in the middle and surprisingly had never thought of the issues beyond measuring light meters on the ground! Many stated after that given the science presented that they need to broaden their viewpoint and take into account human and environmental issues and balance it with the legitimate needs of safe outdoor lighting. I was amazed at how poorly informed many on this committee in fact were. And they set the standards!

One member afterwards caught me in the evening in the hotel, and said they had a very lively discussion, and in his words "you may have broken the IES". Well, let's see what they do.

So, too early to tell yet, but it seems that this presentation may have "moved the needle" a bit. In any event, nearly every major US and Canadian city has ignored the IES since the 2016 report and most cities have gone to 3000K or lower. As I repeatedly have pointed out to the IES, they pretty much have already lost the argument. Cities who study the issue independently agree that they want 3000K, not the IES 4000K. As I told the committee in wrap up, in 2018 it is a bit ludicrous that we still argue about this. That issue is over. The future issue is how low can you go in reducing the total blue production and still make a safe outdoor light. That is what is on the horizon. Some places like Hawaii have already gone blue filtered. Others, like Sherburne, Quebec have gone to amber LEDs. No blue whatsoever. In fact, the latest city, Toronto, Canada in their Results Framework Document (RFD) for planning LED conversion, specifically stated they want to be "AMA compliant", and did not mention the IES standards at all. I let that sink in a bit. That is what they need to start thinking about. The 4000K argument is already old history and lost. Let's hope for some change from IES, and pray for a "dimmer" future.

~ Submitted by Mario Motta, MD ~

For Sale . . .

I have some equipment for sale. I am planning to be at the April meeting.

Fujinon 14x70 binoculars in original case	$275
Televue 2.5X barlow	$90
Telrad with base	$25
Orion 9x50 right angle finder with mount/base	$50

~ Submitted by Joseph Rothchild ~

March Outreach Report . . .

Although the month of March brought 3-1/2 nor'easters it also brought enough clear weather for ATMoB members and friends to participate in two local star parties.

Acton Star Party participants. (L-R standing) Bob Phinney, Bruce Berger, John Reed, Tom McDonagh, Jim Zebrowski, Eileen Meyers, Rich Nugent, Diego Alvarez, Hugo Alvarez, Al Takeda. (L-R seated) George Roberts, Phil Rounseville, John Maher and Gary Green. *

On March 5th, the Acton-Boxborough Parents Involvement Project STEM held their 16th annual event at the Parker Damon building in Acton. The sky was clear and the students and their parents were treated to views of Mercury and Venus as well as colorful/double stars, the Pleiades, Orion Nebula, M44, and the Double Cluster. It was hard to determine the number of attendees but each was thrilled by the views.

Telescopes were provided by Eileen Meyers, Al Takeda, John Maher, Tom McDonagh, Jack Richardson, Hugo & Diego Alvarez, Phil Rounseville, John Reed, Bruce Berger, and Rich Nugent.

Alan MacRobert from *Sky & Telescope* magazine gave tours of the sky despite the on then off then on again outdoor lighting. NASA Solar System Ambassador Jim Zebrowski and the Clay

Center Observatory's Bob Phinney set up wonderful displays, while Gary Green conducted a slide show. George Roberts gave planetarium lectures in an inflatable Star Lab, and Mike Francis…er, Galileo, spoke to the crowds about his astronomical discoveries.

Before going home, volunteers dined on delicious chili (three varieties!) and cornbread and were given fashionable, astronomically-themed bandanas as a token of gratitude.

Astronomy themed bandana *

Chris Elledge hosted a group of Girls Scouts and their chaperones at the Clubhouse on Saturday, March 17th. The Ed Knight roll-off Observatory was open for business and Chris and his guests got to view through the Meade 16-inch SCT and the club's newly acquired 25-inch Dobsonian. The scouts are trialing a new Space Science Badge and one requirement of the badge is to go through a "night scavenger hunt" of solar system and deep sky objects. Although the moon was absent and there were no planets visible during their stay, the scouts were able to see most of the items on their list. It was a cold night and although many of the visitors were not dressed for March temperatures they stuck it out and got to see some wonderful sights.

On March 22nd a star party was held at the Chenery Middle School in Belmont. Only a hint of the moon could be seen through the lingering clouds of the nor'easter that fizzled away, so most of the event was held indoors. An estimated 150 students brought parents and siblings to the event in three waves. Again, Bob Phinney and Jim Zebrowski had large display tables. Bob also brought a full-size, radio-controlled Star Wars R2-D2 unit. Truthfully, it was hard to lure middle schoolers away from THAT but more than a few stopped by the telescopes to ask questions and showed a genuine interest in astronomy.

ATMoB volunteers included Tom McDonagh, Corey Mooney, Bob Toop, John Harrington, and Rich Nugent. Tom, Corey, and John moved outside in an attempt to view the moon while Bob and I stayed inside. I brought my ETX-125 and a picture of Saturn for "viewing." The school district owns a Star Lab planetarium so that was set up for lectures. The clouds never did clear out but we're hopeful that next year the skies will be more kind to us!

If you've never helped out at a star party you should consider giving it a try! We are always looking for volunteers - novices to experts - to help out! Get in touch with me or any of our three star party coordinators: Bernie Kosicki, Laura Sailor, and John Harrington or send an email to starparty@atmob.org. Outreach is fun and rewarding and can inspire kids of all ages to look up and marvel at the universe around us.

~ Outreach Committee Chair: Rich Nugent ~

Impressions From My First Messier Marathon . . .

I was finally able to participate in my first Messier Marathon this past Saturday into Sunday, March 17 - 18. I was excited and a bit nervous not knowing if I'd get frustrated with the hunt and give up or if the cold would cause me to leave earlier than planned. Neither of those happened.

Since I am a beginner and have only ever found about 50 total Messier objects, my goal for the night was not to find all 110 objects. I wanted to find as many as I could and hoped that I could observe about 10 to 15.

After about 5 ½ hours with only one trip into the Clubhouse to put some toe warmers in my boots, I had "discovered" 22 verified objects. Of these objects I had never seen 4 of them on my own. I am very grateful that veteran members Steve Clougherty, Joe Henry and Rich Nugent were there to verify my precious new "fuzzies".

Toward the end of my night (sometime between 1:30 am and 2:00 am), my toe warmers lost their strength and my gloves called it quits, but I wanted to find the elusive Messier 101 or was it 102 (even the books don't know)? I gave it one more try and eventually found a faint fuzzy hiding near the dragon's body (Draco). As I looked around at the empty concrete pads, I decided that the howling coyotes weren't going to help me determine if I was looking as Messier 101. I would need to wait to identify this "fuzzy" another day.

Verified objects: 1, 35, 36, 37, 38, 41, 42, 43, 45, 52, 65, 66, 78, 79, 81, 82, 95, 96, 97, 103, 108, 109. New objects: 95, 96, 105, 106 and possibly (101 or 102).

~ Maria Batista - Member at Large ~

*Editor: * Photos by Al Takeda unless otherwise noted.*

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May *Star Fields* DEADLINE
Sunday, April 22nd

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.
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POSTMASTER NOTE: First Class Postage Mailed April 8, 2018

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
99 College Ave
Arlington, MA 02474
FIRST CLASS5

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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 Daylight Time (EDT) from Universal Time (UT) subtract 4 from UT.

Apr 8 Last Quarter Moon (Moonrise at midnight)
Apr 15 New Moon
Apr 22 First Quarter Moon (Moonset at midnight), Lyrid Meteors peak
Apr 29 Full Moon, Mercury at greatest western elongation (morning)
May 6 Eta Aquariid Meteors peak
May 7 Last Quarter Moon (Moonrise at midnight)
May 8 Jupiter at opposition
May 15 New Moon