



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. 26, No. 8 September 2014

This Month's Meeting...

Thursday, September 11th, 2014 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

ATMoB's Direction Checkpoint Workshop

This will be a special workshop evening to gather feedback and ideas from our members on how well our activities and efforts are aligned with your desires.

The objectives for this workshop are:

- 1) To validate that we are doing activities and directing resources into areas that are most valuable to you - our members. Are there focus areas to be added or removed?
- 2) Given those efforts and activities, identify ways to improve how we execute on those items.
- 3) To gather ideas on how we can better reach out to potential new members to continue to grow as an organization.

Please see the write-up below in the "President's Message" section for further details.

...and if we finish the Workshop early and have extra time...
"Glenn Chapel's Astrohumor"

Please join us for a pre-meeting dinner discussion at Changsho,
1712 Mass Ave, Cambridge, MA at 6:00pm before the meeting.

President's Message...

Back in our July '14 newsletter, I put forward an idea in my "President's Message" about running one or more workshops as a way to gather feedback from you, our members, on how on-track the ATMoB's direction is.

The time has come to start this initiative, so our September meeting will be an "ATMoB Direction Checkpoint Workshop". Working with you, I would like to determine whether or not our energy goes into the right activities. Should there be different areas added to our focus? Should our public outreach change in some ways?

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- 2) Given those efforts and activities, identify ways to improve how we execute on those items
- 3) To gather ideas on how we can better reach out to potential new members to continue to grow as an organization.

Approach:

- 1) First, we'll generate a list of all that we currently do as an organization
- 2) Once we have that list, for each item we'll take a count of folks who feel we should be focusing more energy into that item, less energy into that item, or are doing just about right.
- 3) For those items which you feel we need more or different efforts, we'll collect ideas as to what/how to accomplish the new efforts
- 4) Similarly, we go through the exercise to collect ideas on outreach for avenues for new members

Given the large size of our audience group, all of this may be no easy task. We'll need ground rules and to all be on our best behavior! I'm not sure how far we'll get, but I hope to accomplish much of what is laid out above.

I'm very much open to further ideas as I prep for this month's meeting - feel free to e-mail me at president@atmob.org with your thoughts!

Regards...

~ Neil Fleming - President ~

July Meeting Minutes . . .

ATMoB Meeting - July 10, 2014 - Minutes

The 868th meeting of the Amateur Telescope Makers of Boston was opened by President Neil Fleming.

Business Meeting

The Secretary's Report prepared by Sidney Johnston was read by Eileen Myers. The Treasurer's Report was prepared and read by Eileen Myers. The Membership Report prepared by Tom McDonagh was read by Eileen Myers.

Observing Committee member Glenn Chaple reported that solar observer and prolific writer Barlow Bob (Robert Godfrey) had passed away and that this year's Connecticut River Valley Astronomers Conjunction in Northfield, MA on August 23rd will have an all-day "Barlow Bob" Memorial Solar Star Party. Glenn reported that a dozen people participated in the ATMoB Planet Marathon, with 4 people finishing at dawn during this all-night attempt to view all of the planets. Mercury alone was missed due to a pre-dawn cloud bank. Glenn announced the upcoming close conjunction on August 18th of Venus and Jupiter, occurring 30 minutes before sunrise. Neptune will be at opposition in August and will be well placed for observation in Aquarius. Glenn spoke about 61 Cygni and how its proper motion can be detected over the years. He encouraged members to take images of it now and again a few years from now.

Announcements of events included the Stellafane Convention in Springfield, VT to be held Thursday - Sunday, July 24-27; Rockland Summer Star Party in Plainfield, MA to be held July 25-August 3; Medomak Astronomy Retreat and Symposia to be held in Washington, ME on August 19-23; Connecticut River Valley Astronomers Conjunction to be held in Northfield, MA on August 23.

Clubhouse Committee Director Steve Clougherty gave the Clubhouse Report and described the work to be done at the July 12 work party.

Bernie Volz spoke about the signup to join the group viewing of the August 21, 2017 solar eclipse from a location in Missouri.

Sal LaRiccia gave an update on the preparation by Sai Vallabha of the club's collection of historical photos, and the identification of the people in them. The goal is to have the photos available for viewing on the club's website.

Mario Motta donated to the club a copy of *Deep Sky Companions: The Messier Objects, Second Edition*, published April 7, 2014, author Stephen James O'Meara, which has a well-written history of each object and discusses the astrophysical facts and science of each object. But, and best of all, every image in the book was taken by Mario himself!

Presentations



Paul Valleli, Mike Hill, Bruce Berger, Steve Clougherty, Nick Bealo, Bernie Volz.*

Bernie Volz set up a camera to video the member presentations.

Paul Valleli's presentation was titled: "Smithsonian Moonwatch Program 1955-1962". Before Paul began his talk he first commented that the meeting room we were sitting in was originally called the Phillips Library. All of the books had to be removed to the John Wolbach Memorial Library at the CfA in order to make the room into the auditorium it is today. Paul pointed out that the ATMoB Moonwatch observing station had been on the roof of the building.

In a surprise exhibition of their rocketry prowess, the Soviet Union launched Sputnik (translation 'fellow traveler') as a part of the International Geophysical Year (IGY) from 1957 to 1958, a research effort involving scientists from sixty-seven nations. Sputnik was significantly larger and heavier than the US Vanguard Satellites.

The United States and the Soviet Union, already deep into the Cold War, had both announced satellite projects in response to IGY's 1954 call for artificial satellites to orbit the Earth and map its surface. In advance of the satellite launches, Fred L. Whipple, former planetary astronomer at the Harvard College Observatory (HCO), became director of the Smithsonian Astrophysical Observatory, and introduced a program for amateur astronomers to track artificial satellites. Project Moonwatch participants were trained and ready for action when Sputnik launched on October 4, 1957. Paul showed photos of ATMoB members and their bench mounted Moonwatch scopes. A dozen were made with club funds, but some members either built one for themselves or purchased one from Edmund Scientific, Radio Shack, or Lafayette Radio. A Moonwatch scope was basically a 50mm aperture, f/5 refracting telescope mounted at a 45-degree angle to the table or bench, with a folding mirror to comfortably redirect

the view of the sky. Paul showed photographs of ATMoB members or interested friends, including Anna Hillier and her sister Rose Jordan, Paul Valleli, Frank Roe, Stanley Kaufman, Bernie Forest, Ed Knight, Jim Gagan, and Marshall Melin, all searching for Sputnik to track, time and record it as it passed over their location on the roof of the building. Ham radio operators in the club, including John McCaig and Russ Battersby, set up receivers and tape recorders to listen for its beeps.

Amateurs and their data helped the professionals because the tracking cameras were still under construction. Paul also showed photos of the enormous Baker-Nunn satellite tracking cameras, wide-field Schmidt cameras attached to tri-axial mountings that could cover large swaths of the sky in a single image. The Baker-Nunn camera used a 31-inch primary and a 20-inch triplet aspheric corrector lens. The primaries were quite oversized to prevent vignetting and the instantaneous active area was 20-inches for any one star or object. Predictions, locations and ephemeris data were sent to the Smithsonian Astrophysical Observatory communications center and then on to Baker-Nunn camera operators located all around the world. This allowed them to point their cameras as later satellites were launched so they could record time and position data.

Mike Hill's presentation was titled: "Rebuilding an Old Telescope". Mike told the story of a telescope which he originally built in the 1980's for a friend's son, who only used it for a year. The scope was returned to Mike when the son lost interest. The 4 ½ inch Newtonian reflector on a German equatorial mount gave wonderful wide field images and was very portable, but the tube did not rotate. So last year Mike rebuilt the mount and refinished the base, optical tube, mirror cell, counterweights, covers, basically most of the scope, and used 7 different colors of paint plus primer and polyurethane to make it both a beautiful object to look at as well as look through.

Bruce Berger spoke about the upgrades made to the ATMoB Research and Imaging Observatory (ARIO). Bruce acknowledged all of the many donations the club has received, both as item donations and as money donations, to improve this observatory. He mentioned, some in more detail than others, all of the various types of software, focuser, guide camera, CCD camera, encoder, guide scope, mount, flat field box, monitors, controllers, auto-guider, motors, and more. He expressed much appreciation for all of the work that so many ATMoB members have contributed to the project, and mentioned in particular Alan Sliski for his work building the automated dome controls and the new drive system.

After a background introduction by Eileen Myers, Steve Clougherty talked about and showed many photos (taken by Al Takeda and Eileen Myers) of the 25-inch Dobsonian telescope now installed in the Ed Knight Observatory. The f/3.5 telescope is still owned by former club member Steve Mock. Steve is permitting a group of trained club members to operate it, but any club member can use and observe with it as long as a trained member is present. The mirror was re-coated in Ithaca, NY. Bearings were replaced with inline roller skate bearings. The secondary was cleaned and repacked. Modifications were made to the observatory floor to stabilize it. A new focuser and a

GoldenRod™ Dehumidifier were added, and several improvements were made to the base to allow for smoother movement. Steve thanked David Prowten for all the analysis and careful work he did to improve this scope.

The final presenter was Eagle Scout Nick Bealo, son of Peter Bealo. The title of Nick's presentation was "Timberlane Observatory Eagle Scout Project". Nick proudly spoke about the construction of the 10' x 10' roll off roof observatory made with a custom shed kit. It is located at the Timberlane Regional High School in Plaistow, NH. Nick needed to raise the money, obtain the materials, and manage the project. He was assisted in the construction by friends, other scouts, and local folks who just stopped by to help paint. 400 man-hours were spent on the project. Welders were called in to make the track. Before completion the entire building had to be moved a couple of feet, which Nick described as the scariest part of the entire project.

Prepared and submitted by Eileen Myers at the request of Sidney Johnston, Secretary, because Sidney could not attend the July 10, 2014 meeting.

~ Submitted by Eileen Myers ~

Membership Report . . .

Membership count as of August 29, 2014 is at 340 individuals.

An impromptu new member orientation was held on August 5th at the Clubhouse. Special thanks go out to Bruce Berger and Phil Roundsville for help in answering questions and providing an introduction to the club.

Please welcome our newest and returning members: S Johnson-Roehr, Vishal Vasanth Lal, Nina Choun, Michael Chesleigh and Lee Alinsky.

The membership renewal period end September 1st. **Please renew today!** Many members' subscriptions to S&T and Astronomy magazine are tied to their last renewal date. You can avoid interruption of subscription delivery by renewing now! Please follow the instructions outlined below:

- Please log into the www.ATMoB.org website using your email on record with the club as your login ID.
- If you cannot access the website or have forgotten your password, please contact me via email at membership@atmob.org.
- Once you have successfully logged in, click the "Your Details" tab found on the top right portion of the page.
- In the middle of the page, click on the "Renewals" tab.
- Click on the "Renew your membership" tab and follow the instructions.

One can renew using PAYPAL or personal check. Please feel free to contact me with any questions, concerns or issues.

New members on record in 2014 are not required to renew at this time.

Our communication lifeline includes the ATMOB-Announce and ATMOB-Discuss mailing lists as well as our fantastic newsletter. Please refer to these tools for up to date information on club openings, events and interesting astronomy related discussions. Contact me with questions regarding accessing these options at: membership@atmob.org.

The Amateur Telescope Makers of Boston, Inc. is a 501(c)3 organization. Donations are gladly accepted and are tax deductible to the fullest extent allowed by law. Consider making a tax-deductible contribution to the club during your estate and tax planning this year. Many companies make matching contributions at an employee's request. It is a simple way to make your donation go twice as far.

~ Tom McDonagh – Membership Secretary ~

Clubhouse Report . . .

July 2014



Bob Toop painting the porch lattice. *

SUMMER 2014 CLUBHOUSE REPORT

The first work party (pre-Stellafane) was held 12 July under beautiful 82 deg. clear skies. Nineteen members donated their Saturday to this effort; a big thank you to: John Blomquist, Bruce Berger, Steve Clougherty, Nina Craven, Eric Johansson, Dick Koolish, John Maher Sue Mallen, Leanne and John McDonald, George Paquin, Cheryl Rayner, John Reed, Art Swedlow, Al Takeda, Bill Toomey, Bob Toop, Sai Vallabha, and Tom Wolf.

Thanks to Dick K. for the shovel donation to the tool crib.

- Work continued on the ARIO observatory to slave the dome rotation to the telescope pointing position.
- The paint project for the telescope stow shed was completed by Cheryl R.
- Electrical service to the observing field was interrupted to allow replacement of distribution components damaged during the winter snow removal. Three boxes were replaced and two more identified for future repair. By end of day electrical service restoration allowed the clamshell observatory checkout and member operational checkout to continue.
- Observing field mow and tick/mosquito pellet distribution was again completed. Note that shrub/weed eradication has been halted until the first heavy frost. Weed whacking continued.

John Maher and Tom Wolf pulled duty; observers included Vlad V., Josh B., Joe W., and Rachel K. until clouds terminated activities.

The second work party (pre-Conjunction) was held 9 August under clear 82 deg. skies. Twenty-two members donated their Saturday; a big thank you to: Bruce Berger, John Blomquist, Paul Cicchetti, Steve Clougherty, Nina Craven, John DeCenzo, Charlie and Jim Gettys, Joe Henry, Eric Johansson, Dick Koolish, Penny Lucinian, John Maher, Sue Mallen, Eileen Myers, Dave Prowten, John Reed, Art Swedlow, Al Takeda, Bob Toop, Bill Toomey, and Sai Vallabha.

- Mowing was completed earlier, so trimming was completed. Then Bill T. and Bob T. removed several sections of under-porch cross-hatch enclosure and applied white house stain. Quite an improvement. This work will continue at the September Work Party.
- The eyepiece inventory was completed over the last 3 work sessions by Steve C., Nina C., Eileen M. and John M. The telescope specific eyepiece cases were then refilled with a stepped focal length series for use with that telescope. We will need your input on how well each magnification works with that assigned scope.
- Repair of the lighting on the new side porch stair railing was accomplished today; started by Joe H., this effort was finished under a very hot afternoon sun by Penny L. with components purchased by Joe H.
- A further attempt to replace the GFI unit for the observing field, located on the bulkhead wall, did not succeed due to a defective new unit. The old unit allows the field to operate but test buttons are frozen. Work will continue at the September work session.

- A special thanks to all who worked at food prep/provide/cleanup at both summer sessions. It takes a team to do so. Special thanks to Eric J. for grilling and Sue M. for cleanup help after the August feed. It was a hot afternoon.

Evening duty was pulled by Brian Maerz and John Panaswich; grinding room saw Karl and Jeffrey Dean working. Tony C., Vlad V., and James C. joined in observing. Potential new members Kyoko and Jim Weismann were given the introductory tour by John Maher.

Please join us at the next pre-picnic work session on 6 September starting at 10 am. Getting our Clubhouse spruced up for the picnic on the following Saturday is the goal.

See you there and THANKS!



Nina Craven sorting eyepieces. *

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

Clubhouse Saturday Schedule

September 6	Brian Leacu and Phil Rounseville WORK PARTY # 9	
September 13	John Maher and Tom Wolf ATMoB PICNIC	
September 20	Eileen Myers	Rich Nugent
September 27	Brian Maerz and Glenn Meurer ASTRO ASSEMBLY	
October 4	Joe Henry	Cheryl Rayner
October 11	Nina Craven and Rich Burrier WORK PARTY # 10	
October 18	Bruce Berger	Mike Hill

Sky Object of the Month . . .

**Sky Object of the Month – August 2014
 61 Cygni – Double Star in Cygnus**

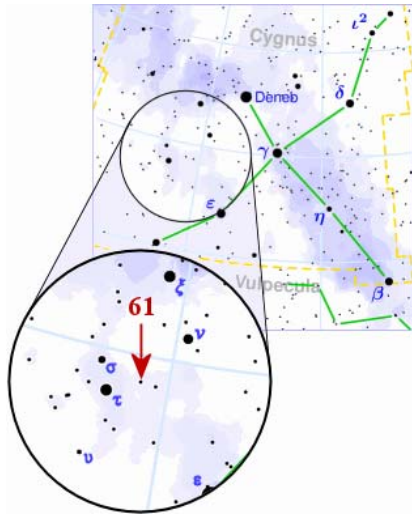


www.windows2universe.org

Our August “Sky Object of the Month” takes us on an 11.4 light year journey to the binary star 61 Cygni. Discovered in 1753 by the English astronomer James Bradley, 61 Cygni has historical significance as the first star (besides the sun) whose distance was accurately determined.

In 1792, the Italian astronomer Giuseppe Piazzi observed 61 Cygni and noted that its location was noticeably different from what Bradley had recorded. “Piazzi’s Flying Star” was zipping across the sky at a rate of 5 seconds of arc per year – fast enough to cross a distance equal to a moon diameter in just 360 years! Reasoning that 61 Cygni must be a relative neighbor to Earth, astronomers began an earnest effort to calculate its distance through an accurate parallax determination. The feat, finally accomplished by the German astronomer Friedrich Wilhelm Bessel in 1832, is one of the greatest in modern astronomy.

61 Cygni is an easy split, but not an easy find. The accompanying chart shows its location relative to a trapezium formed by xi (ξ), nu (ν), sigma (σ), and tau (τ) Cygni. There’s no need for high magnification. The same low power (25 – 50X) normally used to locate sky objects will easily bridge the 31.6 arc-second gap separating its magnitude 5.2 and 6.1 components. Both sport K-type spectra and appear golden yellow in the eyepiece. They complete an orbit in a little over 650 years.



Saint Louis Science Center (www.slsr.org)

I could write more about this celebrated system, but an article on 61 Cygni, written by Alan MacRobert coincidentally appears on pages 50 and 51 of the current (August, 2014) issue of *Sky and Telescope*. MacRobert includes a simple observing project to document 61 Cygni's proper motion against the background stars.

Sky Object of the Month – September 2014
Messier 22 – Globular Cluster in Sagittarius

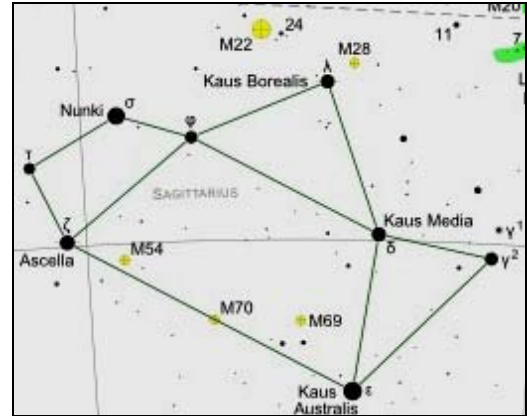


Photo by Mario Motta, MD

On early evenings in September, the constellation Sagittarius arches above the southern horizon, its rich deep-sky treasures accessible to those of us who inhabit mid-northern latitudes. One of the more spectacular of these cosmic splendors is the globular cluster M22. Its discovery is attributed to the German astronomer Abraham Ihle, who came across it on August 26, 1665 while observing Saturn.

Among globular clusters, M22 is exceeded in brightness and apparent size only by omega Centauri and 47 Tucanae. Much of its grandeur results from its nearness to the earth. At a distance of 10,500 light years, it's over two times closer than the much-heralded M13. In reality, M13 is half again as large and contains several hundred thousand stars, compared to M22's estimated 70,000.

I've always been a proponent of small telescopes for backyard astronomy, but had to admit that large aperture scopes are the way to go should you want to resolve the stars in a globular cluster. M22 is an exception. I've resolved it quite nicely with a 4-inch f/4 RFT (an Edmund Astroscan) and a magnifying power of just 74X. Naturally, to view M22 in all its glory you'll want to use a large instrument and 2 or 3 times that magnification.



freestarcharts.com

M22 is relatively easy to locate, if you use the "Teapot" of Sagittarius as a guide. In binoculars and finderscopes, it appears as a 5th magnitude smudge just 2 ½ degrees northeast of Kaus Borealis (Lambda [λ] Sagittarii) - a 3rd magnitude star that forms the top of the Teapot's lid. Next time you're visiting M13, drop southward and give M22 a look-see. Which do you prefer?

~ Glenn Chaple – Observing Committee and VP ~

ATMoB Members Talk and Talk and Talk . . .

Summertime gave ATMoB members the chance to get out and give talks at astronomy conventions run by other New England astronomy clubs. Did you catch any of these?



Al Takeda speaking at the Stellafane Convention. Photo by Eileen Myers

The Stellafane Convention run by the Springfield Telescope Makers and held at the summit of Breezy Hill in Springfield, VT.

- Phil Rounseville - Making Pitch Laps - Talk & Demo

- Al Takeda - Imaging Comets - Talk & Demo
- Bruce Tinkler - Getting Started in Astronomy - Talk & Demo
- John Briggs - The Hartness House Workshop on Binary & Multiple Star Astronomy - Organized and run by John - Multiple short talks
- David Sliski - Transcribing Treasures: How you can rediscover some of the most exciting discoveries of the 19th & 20th century astronomy

The Connecticut River Valley Astronomers Conjunction held at the Northfield Mountain Environmental Center in Northfield, MA

- Al Takeda - Digital Astrophotography for Beginners
- Rich Nugent - Observing Earth Satellites

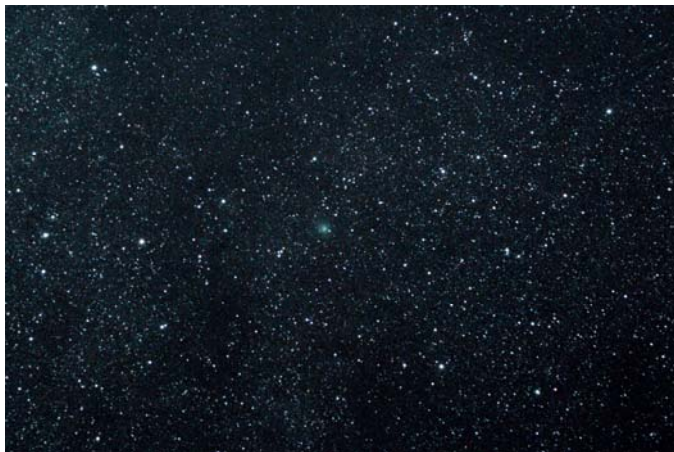


Rich Nugent speaking at the Connecticut River Valley Astronomers Conjunction*

Arunah Hill Days held at the Arunah Hill Natural Science Center in Cummington, MA.

- Al Takeda - Impromptu solar observing demo using a Herschel wedge

~ Submitted by Eileen Myers ~



Comet Jacques over the Clubhouse, Canon T1i + 24-105mm (73mm) enlarged. *

Annual Club Picnic . . .

All members and their families are invited

Saturday, September 13th is the day of this year's Annual Club Picnic at the Clubhouse in Westford. It will start at 3:00 P.M. Enjoy a day with good food and lots of astronomy talk with other ATMoB members.

Please bring something tasty to share - salad, main dish, dessert, soup, appetizer, fancy bread,... A serving utensil would be helpful. We will provide hamburgers, drinks, potato chips, ketchup, mustard, coffee, paper goods and plastic cutlery.

Club members, their families and friends are invited. There will be astronomy activities for kids of all ages. There will be a tour of the clubhouse facilities and a demonstration of mirror grinding. We also plan to walk "up the hill", stopping along the way to talk about the MIT Haystack Observatory facility.

Share your astronomy stories and experiences. Bring any astrophotography you would like to show. There will be daytime H-alpha and white light solar viewing and night sky observing after sunset (all weather permitting). The picnic is on rain or shine. Bring lawn chairs or blankets to sit on. Bring your favorite suntan lotion and mosquito repellent. Observing will continue until Midnight if the sky is clear, so bring your telescope and your observing clothing and gear. The club's scopes will be open too.

Directions to the clubhouse can be found on the last page of Star Fields and at the club website www.atmob.org.

Questions - Email Eileen Myers at starleen@charter.net

Don't miss the fun!

Co-Hosts/Co-Chefs Al Takeda, Art Swedlow, Cheryl Rayner, Eileen Myers, Eric Johansson, John Maher, John Reed, Julie Kaufmann, Sai Vallabha and Susan Mallen

~ Submitted by Eileen Myers ~

Editor: * Photos by Al Takeda unless otherwise noted.

October Star Fields DEADLINE
Sunday, September 21th

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed September 7, 2014

Amateur Telescope Makers of Boston, Inc.
c/o Tom McDonagh, Membership Secretary
48 Mohawk Drive
Acton, MA 01720
FIRST CLASS

EXECUTIVE BOARD 2014-2015

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NEWSLETTER	Al Takeda	newsletter@atmob.org

PUBLIC OUTREACH		
STAR PARTY COORDINATOR:	Virginia Renehan	starparty@atmob.org

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.

Sept 8 Full Moon
Sept 15 Last Quarter Moon (Moonrise at midnight)
Sept 21 Mercury at greatest eastern elongation (evening)
Sept 22 Autumnal equinox
Sept 24 New Moon
Oct 1 First Quarter Moon (Moonset at midnight)
Oct 8 Full Moon, Total Lunar Eclipse, Draconid Meteor Shower
Oct 15 Last Quarter Moon (Moonrise at midnight)