ATM of BOSTON Established 1934

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. 33, No. 9 October 2021

This Month's Meeting . . .

Thursday, October 14th, 2021 at 8:00 PM
Zoom On-line Meeting

All ATMoB meetings scheduled for the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA have been **canceled indefinitely** due to concerns over the coronavirus outbreak.

We are holding virtual on-line meetings using the Zoom application. Please refer to the ATMoB website for future meetings. Members should check their email on the ATMOB-ANNOUNCE list for additional information. Please select this Zoom link to attend the 945th Meeting of the Amateur Telescope Makers of Boston.

Here Comes the Sun

The Sun from Marsa Matruh, Egypt. March 29, 2006. Image by Al Takeda

Our nearest star is a fascinating object to observe and study! Properly filtered telescopes will show sunspots, faculae, and with patience, the solar rotation. Dedicated H-alpha scopes reveal delicate solar prominences, dark filaments, and violent solar flares. Professional space-based telescopes offer a view across regions of the electromagnetic spectrum unavailable to ground-based telescopes and helioseismology provides the data that allows astronomers to map the deep interior of our star. As a chemist, I'm particularly interested in the production of the elements - nucleosynthesis - taking place at the core of the sun and other stars.

Our speaker this month is Dr. Mahboubeh Asgari-Targhi. Dr. Asgari-Targhi's presentation, "Here Comes the Sun", will summarize what we know about the Sun and how it informs us about other stars in the universe. The structure, composition, and properties of the Sun will be discussed as well as recent work on coronal heating and solar wind.

Dr. Asgari-Targhi received her B.Sc. degree in Theoretical Physics from University College London, U.K., in 2002, M.Sc. degree in Quantum Fields and Fundamental Forces from Imperial College, London, in 2003, and a Ph.D. degree in Applications of Mathematics to Solar Physics from University College London in 2009. She is currently an Astrophysicist working at the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA. Her primary research areas include solar physics, plasma physics, plasma astrophysics, with a particular emphasis on the solar corona and solar wind, as well as applications of topology and geometry in astrophysics.

I'll open the meeting at 7:45 p.m. I'm looking forward to the meeting and hope you are, too! Please join us.

~ Rich Nugent – President ~

President's Message . . .

Last month I suggested ways to make your observing sessions more enjoyable. Here are some more thoughts…Your scope is set up, cleaned and collimated. Your finder is aligned, and you've got your star atlas handy. Is your telescope at the ambient temperature? Smaller scopes cool more quickly but larger scopes may benefit from a small fan behind the primary mirror. A warm mirror will cause tube currents that make for a blurry view. After 30 minutes, the view is better. After an hour the scope will likely have settled down nicely. Defocus a star and you'll be able to see the swirling tube currents. The fan will help to cool the mirror faster and blow the warm air out of the tube. Telescopes that live outside tend to be at ambient temperatures but as the night air cools, the primary may still need help.

As the telescope cools, some surfaces, especially the glass, tend to collect dew. Once your finder scope "dews over" finding objects can be a challenge. How does one mitigate dew problems? Well, it's not good to use a shirt sleeve or a piece of tissue paper to mop up the dew so I use 12-volt heater bands. The controller I use has four independent channels for varying the amount of current to each heater. On my Dobsonian telescopes I heat my finder objective and its eyepiece, the telescope eyepiece, and the secondary mirror. Manufactures sell these bands in a wide variety of lengths to accommodate almost any optic. I highly recommend them! Where does my 12-volt power come from? In my driveway I use a 120 VAC to 12 VDC power supply. For the

field I have a power tank from Sears. It is rated for 22 amp-hours and runs the heaters all night long.

When it comes to eyepieces…how many do you really need? If cost is no object buy a full set of Tele Vue Ethos eyepieces! But, for most observers something less pricey will do just fine. We've come a long way from the eyepieces available in the 50's, 60's and even the early 70's! The typical eyepieces provided way back then were the Huygens, Ramsden, and Kellner varieties with 0.965-inch barrels. They did the job but gave very narrow fields of view. Using them was, and still is, like looking down a paper towel tube! To make matters worse, the eye relief was so short that your eyeball was literally touching the glass! Remember? During the 70's, the dream eyepieces were the 1.25-inch Orthoscopic and Erfle designs. Still, the Orthos gave smallish fields of view with short eye relief, especially with the shorter focal lengths. Then came Plössls. Designed in 1860, these eyepieces are still widely available today, don't cost an arm and a leg, and give pleasing views with a decent field of view and good eye relief. Today, companies like Tele Vue and Explore Scientific offer 1.25-inch and 2-inch eyepieces that provide very wide fields of view with sharpness edge-to-edge and tack-sharp optics. But back to the question…how many do you really need?

I don't know how many eyepieces I own so I must own too many! My favorites are the ones that give me a 68° apparent field of view (AFoV) or greater. Manufacturers offer eyepieces with a wide range of AFoV - from 50° to over 100°. Eyepieces with a large AFoV will show more of the sky but usually cost more. If you want to try out various eyepieces, visit the Clubhouse when folks are observing. You'll find out which type will work best for you. For beginners, I recommend a low and medium power combo of Plössls with a good quality 2x or 3x Barlow. By choosing the right eyepiece focal lengths, a Barlow will give you four eyepieces without a duplication of the magnifications. Of course, there are limits for magnification.

A sometimes overlooked parameter of a telescope/eyepiece system is its exit pupil. This is the diameter of the beam of light leaving the eyepiece and entering your eye. To calculate the exit pupil of your system, divide the focal length of your eyepiece by the focal ratio of your telescope. If your eyepiece produces an exit pupil larger than the diameter of your dark-adapted eye's pupil diameter then some of the light does not pass through your pupil and is lost. Younger observers can handle 7mm exit pupils but, as our eyes age, we need eyepieces with smaller exit pupils. My eye doc tells me my dark-adapted pupils are about 5mm in diameter, so I match my low-power eyepieces to give, at most, a 5mm exit pupil. With an f/5 system that's a 25mm eyepiece. Would I ever use a 56mm Plössl in that telescope? Probably not, as it would give an exit pupil of 11.2mm with only 20% of the light reaching my retina!

So, what about the high-power limit? In theory you can magnify a telescope's image as far as your eyepieces will go. Unfortunately, the views may not be very pleasing! We typically try to stay under 50x per inch of aperture. Why? Because any system at that level of magnification will produce an exit pupil of only 0.5mm and that's when things start to get messy. At that magnification level or higher, every speck of dust on your eyepiece or cornea, every defect in your eye's lens, every floater in your eye's vitreous humor, and sometimes even the capillaries in your retina cast shadows which can be seen. The view is dim, fuzzy, and filled with junk! One astronomer described it as "looking through a dirty fish tank!" Try it on the moon…you'll see!

For fast systems (below f/5) coma is unavoidable unless you have something to help. Tele Vue sells its Paracorr for this. Fast achromatic refractors are plagued by chromatic aberration. Various manufacturers offer filters to help with this.

Speaking of filters, I use a light blue (#80A) filter for Jupiter. For daylight views of Venus, I sometimes use a red (#25) or orange (#21) filter to improve contrast. For deep sky, I use a UHC filter for emission nebulae and an OIII for planetary nebulae. I have noted that with smaller aperture telescopes, the OIII may be too restrictive with its 11nm bandpass. Ask at the Clubhouse to borrow one and see if it gets the job done in your telescope.

Your focuser will correct for near- and far-sightedness but not astigmatism. Eyeglass wearers may want to buy long eye-relief eyepieces to accommodate their astigmatism-correcting glasses. For some of their eyepieces, Tele Vue sells correction lenses to eliminate astigmatism.

Enough about hardware. Let's get out and observe!

Do you have an observing list? No? Make one while your scope is cooling down! It'll give you purpose. I choose 10-20 deep sky objects per observing session. These are double stars and deep sky objects. I always check out the planets in the sky and the Moon if it's up. My list always includes one or two objects I've never seen before. I begin my observing runs in the west and work my way across the sky ending up in the east. My observing sessions run about 3 hours – longer if I'm with observing friends.

And, if I'm going to be outside for that long, I am well prepared for the conditions. In the summer it's the bugs! I use Ultrathion insect repellant to keep the mosquitoes at bay. For the ticks, it's permethrin. Minimally toxic to mammals (that's us) it repels and kills ticks. My observing clothing is laced with the stuff, but I still tuck my pants into my socks – just in case. And I do a tick check after each observing session. I find a lint roller is effective for picking up the tiny ones!

In winter, the bugs are gone but it's the cold that keeps me inside. For winter observing, dress as if you're going on an expedition to Antarctica! Keep your core warm and keep your feet warmer. Always try to stay ahead of the cold because, once it soaks in, it's hard to stay excited about more observing. Hand and foot warmers are inexpensive (Walmart sells some that are long-lasting) and really help. A good hat is important. Good gloves, too! Some of my warmest clothes are from Refrigiwear. They make clothing for folks who work in cold environments. Two-thumbs up. But, for me, the ultimate in warmth comes from my 12-volt, heated sweatshirt made by Milwaukee Tools. It was a little pricey and I did buy a rechargeable, 3 amp-hour battery (It

comes with a rechargeable, 1 amp-hour battery). It has three heat settings and I wear it under an overcoat. I'm warm all night long!

One last item of outerwear to consider is an eyepatch. I use one over my non-observing eye to allow me to keep that eye open without the distraction of the ambient light pollution. Whenever I venture into the house, I switch the patch to my observing eye to preserve its dark adaptation. They're inexpensive and can be found at CVS or Walgreens.

Well, that's enough to consider! To summarize, your scope is in good condition, collimated, cooled, and ready to go. You aren't worried about dew, bugs, or cold forcing you inside early. You have an observing list, and your eyepieces and filters are ready. Everything is set for a relaxing, enjoyable evening under the stars! Have a wonderful time!

~ Rich Nugent – President ~

September Meeting Minutes . . .

Richard Nugent of the International Occultation Timing Association (IOTA) *

ATMoB 944th Meeting Minutes
September 9, 2021

Rich Nugent presented the President's welcome. The Center for Astrophysics (CfA) remains closed.

For members that are not fully vaccinated, masks are required inside the Westford Clubhouse at all times. For fully vaccinated members, masking and social distance rules have been lifted. Observing sessions and work parties will be noted on the ATMoB website's event calendar but registration will not be required. Please evaluate your own personal risk tolerance.

The Conjunction convention and the ATMoB picnic have both been cancelled.

Astro Assembly: This will be an in-person event. Presentations by all speakers will be shared on Zoom.

- Alva Couch presented the Secretary's report, including summaries of year-end reports for the Observing, Clubhouse, and Mittelman-ATMoB Observatory committees. Alva also summarized members' presentations given by Kelly Beatty, Mario Motta, and Mark Helton. Thanks to all for their interesting presentations!

- Eileen Myers presented the Treasurer's report and reported large net inflows in July and August, and the club's purchase of a riding lawn mower in August.

- Chris Elledge presented the Membership report and welcomed new members Greg Berghorn; Wenhan Chang; David, John, and Mark Giordano; Aditya Gupta; Everett Heller; Carlos Johnson; Alexander Leminszki; Gail Mower; Robert Nick; Kathy Santos; Carol Swoyer; and Ed Weber. Welcome to all new members!

- Glenn Chaple presented the Observer's report. We had a few close encounters between the Moon and the planets Venus, Saturn, and Jupiter. The planets will continue to be within 4 degrees of the Moon during the next month. Mercury reaches greatest elongation on Sept. 14. The September Observer's Challenge is NGC 6823/20.

- Steve Clougherty presented the Clubhouse report. The July 17 work session attracted 15 volunteers. On Aug. 14 we had 19 volunteers. The riding lawn mower makes mowing much easier; it takes roughly ⅓ of the previous time to mow. We reorganized the sheds and barn for easy access to the mower. Our observatories are now operational. The next work party is planned for Sept. 18th and will include observatory training.

- Al Takeda gave the Mittelman-ATMoB Observatory report. The group is having trouble procuring filters due to COVID induced back orders. After consulting with Arne Henden of the AAVSO, it was decided that we would substitute a Sloan "R" filter from Astrodon and a Sloan "I" filter from Chroma. This will allow us to do some science. Right now we can manually run the observatory but we are working on achieving fully remote operation.

- Maria Batista presented the Eclipse 2024 Committee report and reports making calls and generally planning potential group activities.

- Maria Batista also presented the Website Committee report. We have been meeting every two weeks and are making progress on the architecture. All meetings are online on the ATMoB calendar and others are welcome to join. We are in the writing phase of the project and looking for volunteers to write new content and/or rewrite existing content.

- Rich Nugent presented the Outreach report, including plans for multiple star parties.

    - Monday, September 13 at the Rock Meadow Conservation Area: Chris Elledge plans to bring an EVScope to that star party.

    - Saturday, September 18 in East Otis, MA: Dave Siegrist plans to host a "non-contact" star party for the local scouts with an EVScope.

    - Saturday, October 9 at the New England Sci-Tech Center in Natick, MA: "Astronomy Day" activities.

- Saturday, October 16 is "Observe the Moon" day -- invite your neighbors to view the moon.

• Old business:
https://smile.amazon.com provides a donation to ATMoB every time you purchase something from Amazon. Check it out.

• New business
Eileen Myers will not be ordering 2022 Astronomy calendars and 2022 RASC Observer's Handbooks due to the challenges of distribution without having the Phillips Auditorium as the primary pick up site.

Our monthly speaker was Richard Nugent of the International Occultation Timing Association (IOTA). The title of his talk was "Citizen Science and the International Occultation Timing Association".

Richard Nugent of Austin, TX (not to be confused with our ATMoB President, Richard Nugent) spoke on the value of occultation studies in amateur astronomy. An occultation is an event where one celestial body temporarily passes in front of another. Occultations can be used to measure the sizes of the occulting body, such as an asteroid, but detailed occultation measurements have resulted in astounding finds, including the existence of rings around Uranus and evidence of the atmospheres of Jupiter's moons. An informative occultation study involves precise time and light measurements at distributed locations. The International Occultation Timing Association (IOTA) has put together and offers a low-cost occultation kit, including an NTSC video camera and a "video time-inserter" that time-stamps each frame of the video with a visual indication of the time of the frame. When multiple videos taken at different locations are combined into a single time-course image, the shape of the occulting object is shown as a dark region. Due to the low cost of equipment and the importance of distributed, coordinated observations from different points on the Earth, occultation studies are one of the more accessible ways for amateur astronomers to contribute to astronomy via citizen science.

~ Alva Couch – Secretary ~

ATMoB Board Meeting . . .

Thursday, September 23, 8-10 pm on Zoom

The ATMoB Board met on Zoom to review several budgetary requests as addenda to the budget approved at the June board meeting.

Clubhouse chair, Steven Clougherty reported on repairs needed for the Clubhouse furnace after its long period of non-use, including replacing the vent tubes for an estimated cost of $450. This was approved unanimously.

Rich Nugent recommended purchasing an "Equatorial Platform" for the 25-inch Dob. This is a motorized platform, custom-built by Tom Osypowski of Equatorial Platforms http://www.equatorialplatforms.com that is installed under a Dob and allows the telescope to track an object for up to 80 minutes (and 20 degrees of sky movement). It does not otherwise affect the use of the Dob. To use it, one centers the Dob on the object and then simply turns on the platform motor to keep the object centered. Rich estimated that this will cost a total of $4000. The Board was enthusiastic about this addition and approved this purchase unanimously.

Alan Sliski and Al Takeda outlined purchases needed for the ongoing maintenance of the Mittelman-ATMoB Observatory (MAO). The proposed cost was $500. This addendum to the MAO budget was approved unanimously.

Tom McDonough reported on the status of the William Toomey Observatory. Tom is considering removing the 14-inch SCT and replacing it with the 127mm APO refractor recently donated to ATMoB. This can be accomplished with minimum cost. At the board meeting, no decision was made as to whether to proceed with this conversion.

Rich Nugent brought up the member proposal to place a $100 HEPA filter in the Clubhouse restroom. No action was taken on this proposal.

At this point in the meeting, various board members and committee members gave status reports on projects and ideas:

Kelly Beatty proposed that we start holding ATMoB-branded star parties at places accessible to the MBTA. We could also reach out to astronomy classes in schools and collaborate on a class-centered star party.

Mark Helton suggested that we consider holding virtual live stacking star parties in collaboration with schools, along the lines of what Corey Mooney streamed on You Tube previously.

Maria Batista reported on plans for limited usability testing of the ATMoB website, at a budget of $50 already allocated in the FY budget. This will pay for five $10 Amazon gift certificates to reward five test subjects who will try the website and comment on its organization.

Kai Cai reported on interest from a high-school student who could benefit from a project on the MAO. MAO committee members responded that they would be willing to observe a target of the student's choice while in the process of testing and tuning the observatory.

Chris Elledge suggested that we have a sign up for work parties in order to predict food requirements. Of late, we have misestimated attendees, leading to too much or too little food. Many thanks to Eileen Myers who graciously prepares mountains of food for our work parties!

~ Alva Couch – Secretary ~

Membership Report . . .

I am pleased to welcome our newest members: Bret Bersack; David, John and Mark Giordano; Robert Lebel; Marie Mabardi; Tommy McPherson; Rajeev Meharwal; and Kathy Santos

As of September 30th, 2021 we have 272 memberships covering 344 members. This is broken down as follows:

- 108 Regular Members
- 119 Senior Members
- 2 Student Members
- 41 Family Memberships covering 113 Members
- 2 Honorary Members

Renewals for FY2021-2022 are past due for all members except for members who joined after January 1st this year. Please visit the website at https://www.atmob.org/renew to begin your renewal. You may need to login and revisit the link to proceed. If you want a printed newsletter mailed to you each month, then you need to select one of the membership levels that include "with Mailed Newsletter" in the type.

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

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 #944 is available on YouTube: https://youtu.be/_4edgKSIC18

I would like to thank Richard Nugent (of Austin, TX) for giving his talk.

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/forums

~ Chris Elledge - Membership Secretary ~

For Sale . . .

Planetary reflector: This OTA started out in life as a Meade 826, but its internals have mostly been changed out to maximize planetary performance. The 8-inch f/6 primary mirror is by Mark Harry, regarded as among the best glass pushers in the U.S. The secondary mirror is a 1/17th wave from Protostar, and the secondary mirror spider and holder are also by Protostar. The 'scope has a 2-inch Crayford focuser with an Orion Accufocuser motofocuser attached for precise focusing. Includes original metal mounting rings, tube end rings and plastic tube caps, plus a mounted Telrad. The tube has scuffs and numerous paint chips, but is solid (and it's the optics that count!). Asking $400. If interested, please contact **John Harrington at 617-678-4029**.

Clubhouse Report . . .

Seth Mangum mowing *

September 2021 Clubhouse Report

Our monthly work session at the ATMoB clubhouse was held on Saturday, September 18th with 23 members in attendance. Given the large volunteer turnout we were able to accomplish a lot!

We had access to two large dumpsters, and several volunteers helped load many wheelbarrow fills of old scrap metal and various and sundry items that were cluttering the barn and metal shed. After a couple of hours we were able to empty the bulk of unwanted material from the barn and Clubhouse. Thanks to Mike Lessard, MIT/Haystack facilities manager for giving us access to the dumpsters.

Other volunteers mowed the lawn and trimmed the areas around the buildings and observatories. We would like to arrange to have a few more members trained on the operation of our new rider mower so that mowing could be done in between monthly work sessions when needed.

The Clamshell observatory has a leak which we isolated and began to repair. Next month we hope to complete this work in addition to patching the metal shed roof for the upcoming winter season.

Staining was completed for the telescope shed, and the remainder of our buildings and observatories are weather tight.

We are happy to report that our oil burner and furnace service technicians were successful in firing up the unit after an eighteen month period of dormancy. Some additional vent work will be completed before the onset of the heating season.

An orientation and training session was held for the operation of the 25-inch Dob and Meade 16 in the Ed Knight observatory. We plan to continue with this training over the coming months with the goal of having many new and veteran members trained on the operation of our telescopes and observatories. Notice of each training and orientation session will be posted through the announce list in the future.

Thanks again to Eileen Myers for providing a home cooked lunch!

Thanks to the following members who helped out at the September work session: Maria Batista, Bruce Berger, John Blomquist, Jim Clem, Steve Clougherty, Alva Couch, Chris Elledge, Pierre Fleurant, Jim Gettys, Joe Henry, Marion Hochuli, Dick Koolish, Ed Los, John Maher, Seth and Avery Mangum, Rajeen Meharwal, Eileen Myers, Rich Nugent, Al Takeda, Art Swedlow, Vena Venagopal and David Wilbur.

Our next work party is scheduled for Saturday, Oct. 23.

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

Observer's Challenge** . . .

October, 2021

NGC 6857 – Emission Nebula in Cygnus
Magnitude 11.4,
Size 40”

Canon Ra, 1200mm f/8.0 (5.9 inch aperture) lens, ISO 1600, 140 minute total exposure, 100% scale, North up. Image by Doug Paul

Astronomical literature notes that this month’s Observer’s Challenge, NGC 6857, is a planetary nebula that wasn’t. It was correctly identified as a faint nebula by William Herschel, who discovered it on September 5, 1784. Because of its small size and the presence of a false central star, it was later misclassified as a planetary nebula. Only in recent decades has NGC 6857 returned to its rightful status as a nebula – an emission nebula, to be exact.

NGC 6857 is located in the heart of Cygnus at 20h 01m 48s right ascension and +33° 31’ 38’ declination. It’s just 2 degrees SSE of the 4th magnitude star eta (η) Cygni, which was my starting point for a star-hop (see accompanying finder charts).

theskylive.com

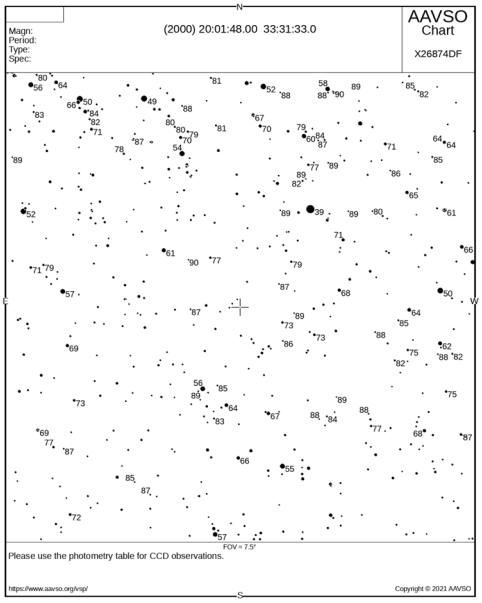


Chart adapted from the AAVSO’s Variable Star Plotter (VSP). Numbers refer to stellar magnitudes, decimals omitted. Stars plotted to 9th magnitude. The magnitude 3.9 star is eta Cygni. North is up in this 2 degree field.

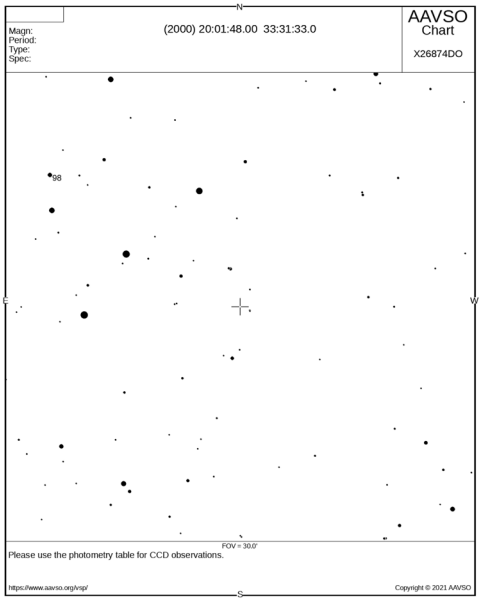
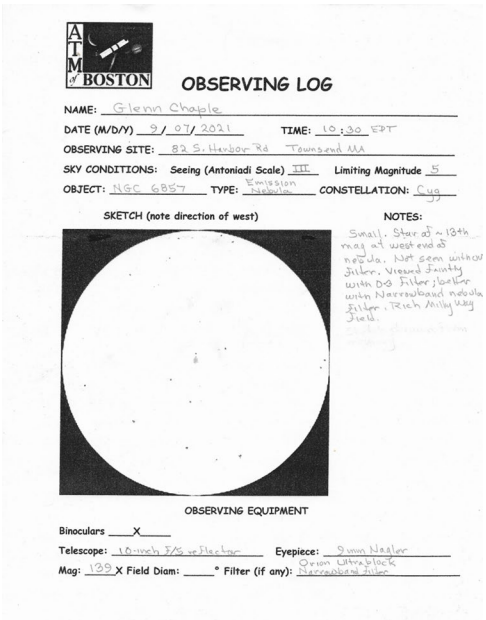


Chart adapted from the AAVSO’s Variable Star Plotter (VSP). Numbers refer to stellar magnitudes, decimals omitted. Stars plotted to 12th magnitude. North is up in this ½ degree field.

I observed NGC 6857 with a 10-inch f/5 reflector on an evening when the magnitude limit was around 5.0. I was unable to see it without the aid of OIII and narrowband filters. Even at 139X, it was small, appearing as a pale ghostly 'flame' emanating eastward from the vicinity of a 13th magnitude star.



10-inch f/5 reflector at 139X. North is up in this 0.6 degree field. Sketch by Glenn Chaple. Click this link for an enlarged view.

NGC 6857 is part of a much larger but fainter emission nebula Sharpless 2-100. Approximately 30,000 light years away, its 40 arc-second apparent size translates to a true diameter of 9 light years.

**The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge or access past reports, log on to https://rogerivester.com/category/observers-challenge-reports-complete/ .

~ Submitted by Glenn Chaple ~

Outreach Activities . . .

On Monday, September 13, members brought out their telescopes and expertise to support an evening of astronomy sponsored by Belmont's Public Library. Capped at 30 participants over concerns surrounding COVID and the Delta variant, those in attendance enjoyed amazing views of the Moon, Jupiter, and Saturn. Thanks to Chris Elledge, John Harrington, Jim McClaren, Corey and Kiera Mooney, and Rich Nugent for braving the mosquitos and helping. The library recently accepted one of the Library Telescope Loaner Program (LTP) telescopes and Chris brought an identical scope to showcase Belmont's scope. Kelly Beatty organized the event and made a guest appearance on his way home after a trip to Alaska! Feedback was good and I'm sure we'll be asked again.

Upcoming events

We have been asked to support an evening of astronomy for Westford's Pack 95 Cub Scouts. Scheduled for Friday/Saturday, November 12/13, the event is posted on our calendar. This will be a small group event to be held at the Westford Sportsmen's Club. If you are fully vaccinated, please consider volunteering for this event. We were with this group two years ago and had a great time! They are very excited for our return visit. Please join in.

~ Rich Nugent – President and Outreach Chair ~

For Sale . . .

Due to age and declining health, I am offering my observatory, **Marrett Pines Observatory** for sale in whole or in part, as is where is. Arrange for inspection.

Meade 14-inch SCT f/10 - Model LX-200R with wide field. Optics in excellent condition. 3-inch Guide Scope & 3-inch Finder. Books and Charts. Equatorial Wedge. Santa Barbara Research CCD Mono Guide Camera. Exploradome 8-ft polyethylene dome, frame building 12 ft. by 10 ft., cement reinforced pier. Insulated cement-board /plywood/tile floor. 20-inch wide door slot. Hurricane retainer brackets.

Many accessories, tool box, and tools, stool and observer's chair. Eyepieces, Dell XP mini-tower PC and connections to scope. LesveDome controller with Velleman control processor. Environmentally controlled interior.

Some demolition may be required to disassemble/remove building. Walls are attached to concrete block foundation with J-bolts.

SouthBend 9-inch Lathe $480 with lots of tools and accessories. As is where is 110V AC working lead screw and thread cutting. Mounted on workbench.

Bridgeport Mill - 220V 3 phase $350. some tooling and clamps. Chrome Ways, some light rust. Can run on 220 V single phase with $250 3ph-1ph Inverter. As is where is.

Phone #: 1-781-272-8946, Burlington, MA

~ Submitted by Paul Valleli ~

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

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November *Star Fields* DEADLINE
Sunday, October 24th

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.
****

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
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FIRST CLASS

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How to Find Us...
Web Page www.atmob.org

MEETINGS: Zoom On-Line Meetings until further notice. Meetings held the second Thursday of each month (September to July) at 8:00 PM. For meeting details go to 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 CLOSED. 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.

Heads Up For the Month . . .

To calculate Eastern Daylight Time (EDT) from Universal Time (UT) subtract 4 from UT.

Oct 6 New Moon
Oct 7-8 Draconid meteors
Oct 12 First Quarter Moon (Moonset at midnight)
Oct 20 Full Moon
Oct 20 Orionid meteors peak, 12 UT (08:00 EDT)
Oct 24 Mercury at greatest western (morning) elongation (18 degrees)
Oct 28 Last Quarter Moon (Moonrise at midnight)
Oct 29 Venus at greatest eastern (evening) elongation (47 degrees)
Nov 4 New Moon
Nov 4 Uranus at opposition
Nov 7 Daylight Saving Time ends