



## 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. 28, No. 8 September 2016

### This Month's Meeting . . .

Thursday, September 8<sup>th</sup>, 2016 at 8:00 PM

Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

### #popscope Observing Outreach Program



Our guest speaker this month (and also new ATMoB member) is Michael O'Shea. Michael will present an in-depth look at the #popscope observing outreach program. He will outline problems in our cities and in the field of astrophysics that #popscope seeks to address, explain a simple, but powerful model for urban astronomy outreach, and provide "best practices" for observing the night sky in light-polluted cities and engaging the public. In addition, Michael will provide abundant examples of #popscope's work through images and video.

Since 2014 this urban astronomy group has connected thousands of everyday people to the night sky -- and to each other -- through free, pop-up sidewalk telescope events. This completely volunteer-led organization aims to involve more people in astronomy -- especially populations underrepresented

in the field -- and give everyone the chance to look through a telescope!

Our speaker, Michael O'Shea, works by day in Boston as a consultant in the higher education and non-profit sectors. But by night, he is a community activist and astronomy enthusiast with #popscope. You can learn more about #popscope at [www.popscope.org](http://www.popscope.org).

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

### President's Message . . .

I hope you all had a nice summer, despite the lingering heat. The nights are again lengthening, and we've recently been treated to some beautifully clear evening skies. The crisp, clear, and LONG autumn nights will soon be here!

ATMoB doesn't hold a formal monthly meeting in August, but summer astronomy conventions are a wonderful substitute. The Astronomers' Convention in Northfield, Massachusetts, is a popular draw for ATMoB members, and this year's event was no exception. At Stellafane (ATMoB's unofficial summertime meeting), we were well represented among the roster of speakers. Members who presented talks were Phil Rounseville, Rich Nugent, Paul Courtemanche, Al Takeda, and Mario Motta. Yours truly teamed up with Al French, husband of Sky and Telescope's "Deep Sky Wonders" columnist Sue French, to present a 2-hour session on telescopes for beginners.

One of my Stellafane highlights occurred earlier in the day at the Stellafane swap table, where I purchased a piece of nostalgia - a 2 1/2 inch 80X Gilbert reflecting telescope. It was a scope like this, borrowed from a high school friend back in 1964, that launched my lifelong interest in astronomy. The Gilbert 80X reflector harkens back to a time, post Sputnik, when interest in outer space and astronomy mushroomed and companies like Gilbert and Edmund Scientific scrambled to produce entry level telescopes. Perhaps some of you old-timers have fond memories of your own first spacewalks with a Gilbert scope, primitive as it was. The finder was nothing more than a hollow tube, the eyepiece a Ramsden that delivered a tad bit too much magnification and too little a field of view, and the mount was rickety at best. I took my little Gilbert scope outside a few nights ago and, despite these shortcomings, got a pleasant view of Mizar. I was quickly brought back to an evening over a half century ago when I first glimpsed this beautiful double star, courtesy of my friend's Gilbert reflector. Who says you can't go home again?



Gilbert Scope. Image by Glenn Chaple

While it's nice to reminisce about the past, it's even nicer to anticipate the future. We have eleven monthly meetings to look forward to in the upcoming 2016-2017 season (and considering its popularity, we can assume that the optional July member's meeting will be a given). Our September, 2017, meeting is still a year away, but I think we can agree that it will be devoted to members recounting their adventures of the great August 21 total solar eclipse.

One more event to look forward to - on September 10, we'll be holding our annual picnic at the Westford Clubhouse, starting at 3 pm. Hope to see you there!

Clear Skies!

~ *Glenn Chaple - President* ~

## July Meeting Minutes . . .

Minutes of the ATMoB meeting held on July 14, 2016 in the Phillips Auditorium at the Harvard-Smithsonian Center for Astrophysics. ATMoB President Glenn Chaple started the meeting at 8:00 pm.

- Phil Levine read the June ATMoB meeting minutes.
- Eileen Myers gave the Treasurer's Report.
- Chris Elledge gave the Membership Report.
- Glenn Chaple gave the Observing Report.  
Highlights:  
The Moon occults Aldebaran on the morning of Friday, July 29th.  
  
The Perseid meteor shower should be at its maximum on August 12th .  
  
Anatares, Mars, and Saturn are in alignment on August 23rd.
- The Sue French Fan Club pick for July was NGC 6293, a globular cluster in Ophiuchus. The August pick was M11, an open cluster in Scutum.
- The Las Vegas Observer's Challenge for July was the globular cluster, M92 in Hercules. The August challenge was Chaple's Arc/Fairy Ring asterism in Cygnus.
- Eileen Myers' observing picks for July/August: NGC 7662 (Blue Snowball), Omicron-1 (triple star system), NGC 6826 (Blinking Planetary), NGC 7027 (Planetary Nebula) and Alpha Herculis (Double Star).

Glenn Chaple encouraged any member who would like to suggest adding some interesting objects for the Observing Report to contact him.

- Steve Clougherty gave the Clubhouse Report.

For further details see the ATMoB Newsletter or reference [www.youtube.com/watch?v=v7P9wyeWhbw&feature=youtu.be](http://www.youtube.com/watch?v=v7P9wyeWhbw&feature=youtu.be)

- **Announcements:**  
John Sheff mentioned that it was exactly 1 year ago when the New Horizons spacecraft flew by Pluto. It sent back detailed photos showing active geological features and indications that Pluto has an atmosphere.

Glenn Chaple announced that the observing series, "Beginners General Survey of the Night Sky", will be continuing at the Westford Clubhouse.

- **Old Business:**  
Bruce Berger highlighted the ATMoB Research and Imaging Observatory (ARIO) shutter design work and fabrication job performed by Charlie Gettys. He indicated that the observatory is now working great.

Mario Motta gave an update on the "dark sky" amendment in the Massachusetts Legislature.

Maria Batista gave an update on the website committee's work to select a new ATMoB website service provider.

- **New Business:** none

Glenn Chaple introduced the evening's guest speakers: club members Alan and Aaron Sliski, Phil Levine, and Mario Motta.



(L-R) Aaron Sliski and Alan Sliski \*

Alan and Aaron presented photos from their trip to Chile. They gave an overview of the redeployment of the American Association of Variable Star Observers (AAVSO) Photometric All-Sky Survey (APASS) telescope system. [www.aavso.org/apass](http://www.aavso.org/apass)

Phil Levine presented photos from an ATMoB public outreach star party on Nantucket Island last April.



Phil Levine \*

Mario Motta gave an update on a Harvard-Smithsonian Center for Astrophysics (CfA) research project that is measuring the light curve of the disintegrating planetoid orbiting the white dwarf, WD1145+017. Both Mario and fellow ATMoB member, Gary Walker, are independently recording light curves from WD1145+017. An updated CfA research paper will be published this fall. Also, look for an article written by Mario Motta to appear in *Sky and Telescope Magazine* on WD1145+017 later this year.



Mario Motta \*

Snacks were provided by Phil Levine

Glenn Chaple adjourned the meeting at 10 pm.

~ *Phil Levine - Secretary* ~

## Meeting Recordings . . .

The recording of ATMoB meeting #890 is available on YouTube: <https://youtu.be/v7P9wyeWhbw>

The recordings our our meetings are now linked on our website <http://www.atmob.org/library/meetings.php>. Thanks to Bernie Volz for adding the links.

~ *Chris Elledge - Membership Secretary* ~

## Membership Report . . .

I am pleased to welcome our newest members: Marvin Bedingfield, Thomas Consi, Richard Hasbrouck, Robert Hout, James Mahoney, Anthony Maletta, Michael O'Shea, Kevin Seiffer, Gus Simiao, Michael Terranova, and Adam Woodbury.

As of August 21st, 2016 we have 334 members. Of that number we have 147 members that are either new as of 2016 or have renewed for 2016. The renewal period ends at the beginning of September. If you wish to continue receiving the newsletter, getting invitations to club events, and taking advantage of our Clubhouse, please renew as soon as possible. Your dues and donations are what make these possible.

If you need any help at all in the renewal process, please contact me by email ([membership@atmob.org](mailto:membership@atmob.org)), phone, or mail. My contact information is available on the back page of the newsletter and on the website. A renewal form is available online which lists all the renewal options and costs. While you are renewing please consider making a tax deductible donation to the club.

~ *Chris Elledge - Membership Secretary* ~

## Clubhouse Report . . .



Maria Batista planting mosquito repelling plants \*

## July 2016 Clubhouse Report

The Clubhouse was opened for the July 16th work session at 8:10 am by John Blomquist under clear skies and a 90-degree temperature on the thermometer. He was later joined by Maria Batista, Bruce Berger, Paul Cicchetti, Steve Clougherty, Chris Elledge, Jim Gettys, Breno Giacchini, Eric Johansson, Charles Leiserson Jr, John Maher, Mike Mattei, Eileen Myers, John Reed, Gus Simiao, Sergio Simunovic, Fraser Sinclair, John Stodieck, Al Takeda, Bill Toomey, Sai Vallabha, John & Victoria Wendler, and Tom Wolf. Twenty four members tackled various projects throughout the day.

- Tractor mowing, manual gas powered push mowing, edge trimming.
- Continued hand scraping the porch roof line to remove any loose paint .

- Reburied an underground conduit exposed by soil migration.
- Mouse tubes with cotton balls soaked in permethrin were constructed & deployed in field to reduce the tick population.
- Dead wood & brush trimmed and removed around the field and driveway.
- Invasive brush removal on the west side of observing field continued.
- Continued to spread gravel on the driveway low spots.
- The ATMoB Research and Imaging Observatory (ARIO) shutter system continued to be checked out.
- An original 1960's ATMoB 6-inch mirror was cleaned by Steve Clougherty for returning 1960's member, Charles Leiserson Jr.
- Tony Costanzo tested a 6-inch mirror and repolished it to bring it up to proper specs.

Great teamwork was shown by members working in the high heat. Ice cold bottles of water was much appreciated. Lunch was served at 2 pm by the crew of Eileen, Sai, Eric and John.

Clouds and the full Moon did not stop the group from "tweaking" the ARIO observatory until the testing was completed at midnight. The temperature finally dropped to 74 degrees.



Slav Mlch preparing the new drain system piping. \*

### August 2016 Clubhouse Report

The August 20th Work Party was opened again by John Blomquist at 9:30 am under a cloudy sky and 74-degree temperature. He was later joined by Barbara Bosworth, Paul Cicchetti, Paul Courtemanche, Nina Craven, Chris Elledge, Jim Gettys, Dick Koolish, Penny Lucinian, John Maher, Bill McHenry, Vladislav Mlch, Nkosi Muhangi, Eileen Myers, John Reed, Phil Rounseville, Art Swedlow, Al Takeda, Bill Toomey, Sai Vallabha, John & Victoria Wendler. Twenty two members were responsible for progress in the following areas:

- Dry weather stopped grass growth but weed cutting and edging were accomplished with push mowers and hand cutters.
- A big effort was required to remove 3 tree stumps and 3 "rising" rocks that were hitting and damaging mower blades.
- Dead wood was removed along the edge of the observing field.
- A significant brush removal effort was made along the West side of the field.
- More gravel was spread onto the driveway.
- Basement work to connect the drain system and sump pump was resumed (this was a big effort). Work will continue when the new fittings arrive.
- Work to repair the library window was undertaken and an air conditioning (A/C) unit was temporarily installed to allow small classes to use that room. More reconstruction work awaits Dave Prowten's return from Stellafane.
- Problems with our telephones were largely solved after Al rewired the internal phone system and checked it thoroughly.

Teamwork again was key to this day's success. Lunch was again served at 2 pm.

Paul Cicchetti's H-alpha telescope gave us a wonderful view of the sun earlier in the day. Later, some breaks in the clouds allowed some peeks at the full moon. The low altitude of Jupiter in the west made observing it difficult, but Mars and Saturn with Antares were still observable.

The Clubhouse continues mirror grinding on Thursday evenings, Astronomy classes on Friday evenings, and observing on Saturday evenings. Look for Announce messages once the weather forecast predicts some clearing skies. Steve or another anxious observer will be asking for other observers to buddy up with them for a night of observing.

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

<b>Clubhouse Evening Schedule</b>	
Thursday Night Mirror Making	7:00 pm - #
Friday Night Educational Videos	7:00 pm - 10:30 pm #
Saturday Night Observing	7:00 pm - ##
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty	
Note: The Clubhouse is closed on the 2nd Thursday of the month for our monthly meeting in Cambridge.	
Due to inclement weather or cloudy 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 messages posted to ATMOB-ANNOUNCE.	

Clubhouse Saturday Schedule		
September 3	Al Takeda	Volunteer Needed
September 10	<b>ATMoB PICNIC</b> Bruce Berger + Jim Gettys	
September 17	<b>WORK PARTY # 9</b> Bill Toomey **	
September 24	John Panaswich	George Paquin
October 1	Joe Henry	Volunteer Needed
October 8	John Maher	Eileen Myers
October 15	<b>WORK PARTY # 10</b> Nina Craven **	

\*\*Duty member is supplemented by a work crew volunteer. If a volunteer is not available, the work crew closes the Clubhouse

## Sky Object of the Month . . .

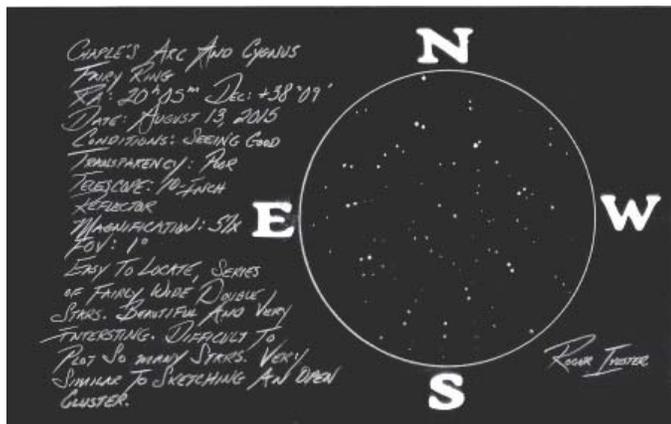
August 2016

Courtesy LVAS Observer's Challenge\*\*\*

Chaple's Arc/Fairy Ring–Asterism in Cygnus  
(Magnitude 7, Size 22')



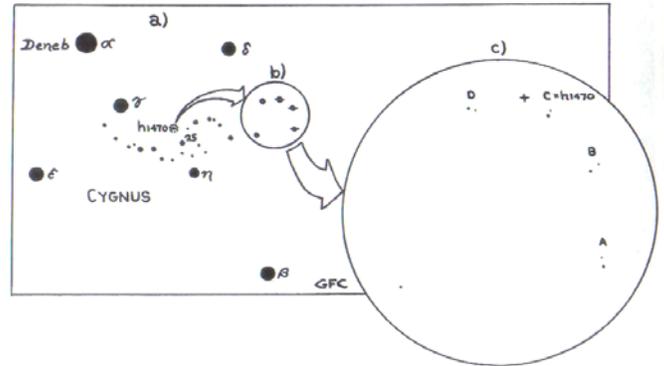
Image by Rick Kazmierki



Sketch by LVAS member Roger Ivester

This striking arc-shaped arrangement of four double stars was found by amateur astronomer Glenn Chaple during a search for the pair h1470 (one of the four) with a 3-inch reflecting telescope. He eventually reported the group in the September, 1980, issue of *Deep Sky Monthly*, and a reader dubbed it "Chaple's Arc." The group was independently found by Utah

amateur Kim Hyatt, who was also looking for h1470. With a 10-inch scope, he added several fainter pairs that, with the Arc, formed a ghostly ring. He christened it the "Fairy Ring" and reported it to his friend Brent Watson. Watson included the Fairy Ring in his booklet *Finder Charts of Overlooked Objects*. Today, the asterism bears both names.



Sketch and chart by Glenn Chaple (From *Deep Sky Monthly*, September, 1980)

September 2016

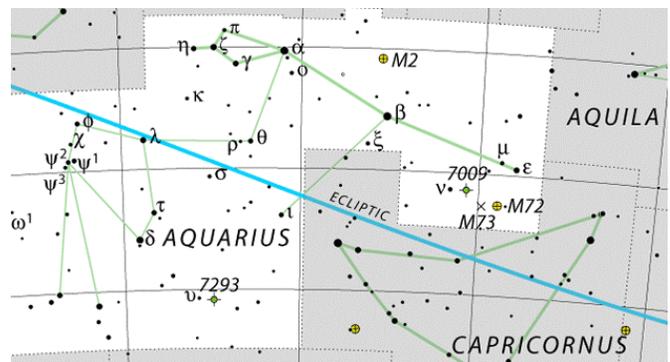
Courtesy LVAS Observer's Challenge\*\*\*

NGC 7009 "Saturn Nebula" –Planetary Nebula in Aquarius  
(Mag 8.0, Size 20")



(Left) Saturn Nebula. (Right) Nebula showing the central star. Mario Motta

Discovered in 1782 by William Herschel, NGC 7009 (the "Saturn Nebula") is located a little over one degree west of the 4.5 magnitude star nu ( $\nu$ ) Aquarii and just a few degrees northeast of the Messier objects M73 (a four-star asterism) and M72 (a small globular cluster). It gets its nickname from a pair of thin extensions, or ansae, that stretch out to the sides of the main nebula, giving it the appearance (and apparent size) of the planet Saturn.



[www.constellation-guide.com](http://www.constellation-guide.com)

The Saturn Nebula is readily glimpsed in small-aperture scopes, appearing as a slightly oval object blue-green in color. The ansae require larger instruments. The challenge is to determine the smallest aperture needed to view them. Another challenge is to spot the central star which shines at magnitude 11.5, but which is masked by the surrounding nebulosity.

\*\*\*The purpose of the LVA 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 LVA 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 \(rogerivester@me.com\)](mailto:rogerivester@me.com) or [Fred Rayworth \(fred@fredrayworth.com\)](mailto:fred@fredrayworth.com). To find out more about the LVA Observer's Challenge or access past reports, log on to [lvastronomy.com/observing-challenge](http://lvastronomy.com/observing-challenge).

~ Glenn Chaple – Observing Committee ~

## Annual Club Picnic - Saturday, September 10 . . .



All Members and their Families are invited.

Saturday, September 10th is the date of this year's Annual Club Picnic at the Clubhouse in Westford, start time 3:00 P.M. Enjoy a day with good food and lots of astronomy talk with other ATMob members.

Please bring a favorite dish 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. Planned activities are a tour of the clubhouse facilities, a demonstration of mirror grinding, and the ever popular 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). Celestial attendees include 1st Q Moon, Venus, Saturn, Mars, Uranus and Neptune.

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](http://www.atmob.org).

Questions - Email Eileen Myers at [starleen@charter.net](mailto:starleen@charter.net)

Don't miss the fun!

Organized by ATMob's Good Times Co-Hosts and Co-Chefs, Nina Craven, Julie Kaufmann, Eileen Myers and Al Takeda.

~ Submitted by Eileen Myers – Treasurer ~



Nina Craven cleaning and expanding the flower garden at the Clubhouse in preparation for the Annual Club Picnic. Image by Eileen Myers

## "How to View the 2017 Solar Eclipse Safely" Poster . . .

Editor: From Dr. Mario Motta's email dated 8/22/2016

"I am on a committee of the American Astronomical Society (AAS) to encourage viewing of the 2017 eclipse, and do it safely. Attached is a [document](#) I worked on with several others, that has now been endorsed by many, including NASA, and on my appeal, the American Othamological Society (eye doctors). This is good, because we will all be giving the same message and avoid the 1994 annular eclipse situation where the lawyers convinced all the school systems to keep the kids locked up for fear of liability. [See attached.](#)"

~ Submitted by Mario Motta, MD ~

## Stellafane Convention 2016 . . .

The 81st Stellafane Convention, held on Thursday, August 4th to Sunday, August 7th, was a summertime destination to immerse oneself into all things astronomical. While the event is primarily a telescope making convention, there are many other programs, demos and lectures that one can embrace.

On Thursday, a separate workshop is held at the Hartness House in Springfield, Vermont. Of particular interest to me was this year's "Sub-Arcsecond Spatial Resolution Imaging" program. Lecturers included professional solar astronomers and advanced amateur planetary imagers.

That evening, after the workshop ended, I set up my telescope close to the McGregor observatory. This year Stellafane launched the "Observing Olympics", a list of challenging objects to find through your telescope. This program was initiated by ATMoB and STM member, Eileen Myers in collaboration with Larry Mitchell, chairman of the Texas Star Party Advanced Observing Program. Observers that successfully find 15 out of 30 objects received a Stellafane Observing Olympics pin, designed by Eileen Myers, from Larry himself. According to Eileen and Larry, they presented over a hundred pins and agreed that the inaugural program was a success.

Thursday and Friday nights were good nights for observing except for some haziness obscuring views toward the southern horizon. Saturday was cloudy and I sat around talking to my fellow observers until midnight .



Paul Courtemanche talking about his award winning binocular telescope \*

Many ATMoB members presented lectures and demonstrations throughout the convention:

- Glenn Chaple - An Intro to Telescopes For All Ages.
- Paul Courtemanche - Constructing Large Binoculars.
- Mario Motta - Human and Environmental Effects of LED Street Lighting and WD1145+017, A White Dwarf Destroying a Planet. How Pro-Am Collaboration Helped Solve a Mystery.
- Rich Nugent - Observing Earth Satellites.

- Phil Rounseville - Making Pitch Laps and Collimation and Maintenance of a Cassegrain-Type System.
- Al Takeda - Astronomy in Motion.



Astronomy in Motion workshop image. Friday night, Aug. 5 \*

On Saturday I visited Breezy Hill, the site of the Pink Clubhouse, and marveled at many of the hand built telescopes on display. The most impressive scopes were the twin 6-inch Alvan Clark refractor reproductions (named Castor and Pollux) built by master craftsmen, Allen Hall and Dick Parker.



Twin Alvan Clark refractor reproductions. (L-R) Castor and Pollux \*

I attended a few more afternoon lectures, spoke to old friends that I only see at "convention" and listened to the keynote speaker, Fred Espanek, give us his sage advice on the upcoming 2017 total solar eclipse. It was still cloudy at midnight so I decided to catch up on some sleep after pulling 2 all-nighters on Thursday and Friday.

It was a great convention and I look forward to next year.

~ Al Takeda - *Newsletter Editor and Member at Large* ~  
Editor: \* Photos by Al Takeda unless otherwise noted.

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**October Star Fields DEADLINE**  
**Sunday, September 25<sup>th</sup>**

Email articles to Al Takeda at  
[newsletter@atmob.org](mailto:newsletter@atmob.org)

**Articles from members are always welcome.**

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## How to View the 2017 Solar Eclipse Safely

A solar eclipse occurs when the Moon blocks any part of the Sun. On Monday, August 21, 2017, a solar eclipse will be visible (weather permitting) across all of North America. The whole continent will experience a partial eclipse lasting 2 to 3 hours. Halfway through the event, anyone within a 60- to 70-mile-wide path from Oregon to South Carolina (<http://bit.ly/1xuYxSu>) will experience a brief total eclipse, when the Moon completely blocks the Sun's bright face for up to 2 minutes 40 seconds, turning day into night and making visible the otherwise hidden solar corona — the Sun's outer atmosphere — one of nature's most awesome sights. Bright stars and planets will become visible as well.



Looking directly at the Sun is unsafe except during the brief total phase of a solar eclipse (“totality”), when the Moon entirely blocks the Sun's bright face, which will happen only within the narrow path of totality (<http://bit.ly/1xuYxSu>).



The only safe way to look directly at the uneclipsed or partially eclipsed Sun is through special-purpose solar filters, such as “eclipse glasses” (example shown at left) or hand-held solar viewers. Homemade filters or ordinary sunglasses, even very dark ones, are not safe for looking at the Sun. To date three manufacturers have certified that their eclipse glasses and hand-held solar viewers meet the ISO 12312-2 international standard for such products: Rainbow Symphony, American Paper Optics, and Thousand Oaks Optical.

- Always inspect your solar filter before use; if scratched or damaged, discard it. Read and follow any instructions printed on or packaged with the filter. Always supervise children using solar filters.
- Stand still and cover your eyes with your eclipse glasses or solar viewer before looking up at the bright Sun. After glancing at the Sun, turn away and remove your filter — do not remove it while looking at the Sun.
- Do not look at the uneclipsed or partially eclipsed Sun through an unfiltered camera, telescope, binoculars, or other optical device. Similarly, do not look at the Sun through a camera, a telescope, binoculars, or any other optical device while using your eclipse glasses or hand-held solar viewer — the concentrated solar rays will damage the filter and enter your eye(s), causing serious injury. Seek expert advice from an astronomer before using a solar filter with a camera, a telescope, binoculars, or any other optical device.
- If you are within the path of totality (<http://bit.ly/1xuYxSu>), remove your solar filter only when the Moon completely covers the Sun's bright face and it suddenly gets quite dark. Experience totality, then, as soon as the bright Sun begins to reappear, replace your solar viewer to glance at the remaining partial phases.



An alternative method for safe viewing of the partially eclipsed Sun is pinhole projection. For example, cross the outstretched, slightly open fingers of one hand over the outstretched, slightly open fingers of the other. With your back to the Sun, look at your hands' shadow on the ground. The little spaces between your fingers will project a grid of small images on the ground, showing the Sun as a crescent during the partial phases of the eclipse.

A solar eclipse is one of nature's grandest spectacles. By following these simple rules, you can safely enjoy the view and be rewarded with memories to last a lifetime. More information:

[eclipse.aas.org](http://eclipse.aas.org)

[eclipse2017.nasa.gov](http://eclipse2017.nasa.gov)

**POSTMASTER NOTE:** First Class Postage Mailed Sept 7, 2016

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

**EXECUTIVE BOARD 2016-2017**

PRESIDENT: Glenn Chaple (978) 597-8465

VICE PRES: Tom McDonagh

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MEMBERSHIP: Chris Elledge (781) 325-3772

TREASURER: Eileen Myers (978) 456-3937

MEMBERS AT LARGE: Bruce Tinkler (781) 862-8040

Al Takeda (508) 494-7877

Maria Batista

**PAST PRESIDENTS:**

2012 - 14 Mike Hill (508) 485-0230

2010 - 12 Bernie Kosicki (978) 263-2812

**COMMITTEES**

CLUBHOUSE : John Reed (781) 861-8031

Steve Clougherty (781) 784-3024

David Prowten (978) 369-1596

OBSERVING: Bruce Berger (978) 387-4189

NEWSLETTER Al Takeda [newsletter@atmob.org](mailto:newsletter@atmob.org)

**PUBLIC OUTREACH**

STAR PARTY COORDINATOR:

Virginia Renehan [starparty@atmob.org](mailto:starparty@atmob.org)

**How to Find Us...**

**Web Page [www.atmob.org](http://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](http://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 1 New Moon

Sept 9 First Quarter Moon (Moonset at midnight)

Sept 16 Full Moon, Penumbral Lunar Eclipse

Sept 21 Aldebaran 0.2 deg. S. of Moon

Sept 22 Autumnal Equinox

Sept 23 Last Quarter Moon (Moonrise at midnight)

Sept 30 New Moon

Oct 8 Draconid Meteor Shower