



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. 6 June 2016

This Month's Meeting . . .

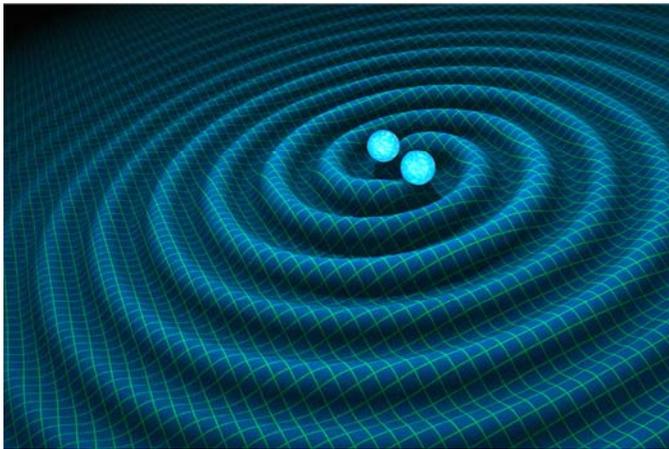
Thursday, June 9th, 2016 at 8:00 PM

Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

Gravitational Wave Update



Artist's impression of gravitational waves generated by binary neutron stars
Credits: R. Hurt/Caltech-JPL

Our guest speaker this month is Bob Naeye, who will update us on new and exciting discoveries about gravitational waves.

At our March meeting, Naeye gave a brief presentation on the gravitational wave discovery by the Laser Interferometer Gravitational Wave Observatory (LIGO). A press release last month indicated a confirmation of gravitational waves rippling from a distant merger of two black holes.

Besides being an ATMoB member and good friend, Bob Naeye is well-known to the astronomical community. He was editor in chief of *Sky & Telescope* magazine and SkyandTelescope.com from 2008 to 2014 – his third stint at *S&T*. He served as an editorial intern during the summer and autumn of 1991, when he

was finishing his master's degree in science journalism from Boston University. He returned in November 2003, and worked as a senior editor until January 2007. Bob has also worked as a researcher/reporter at *Discover* magazine from 1992 to 1995, and as an associate then senior editor at *Astronomy* magazine from 1995 to 2000. He served as editor in chief of *Mercury* magazine (the membership magazine of the Astronomical Society of the Pacific) from 2000 to 2003. From February 2007 to May 2008, Bob was the senior science writer in the [Astrophysics Science Division at NASA's Goddard Space Flight Center](#) in Greenbelt, Maryland. Bob has authored two books. His 1997 book, *Through the Eyes of Hubble: The Birth, Life, and Violent Death of Stars* was published by Kalmbach. His 2000 book *Signals from Space: The Chandra X-ray Observatory* was co-published by Turnstone and the Harvard-Smithsonian Center for Astrophysics. Besides his membership in ATMoB, Bob is a proud member of the [American Astronomical Society](#), the [Astronomical Society of the Pacific](#), and the [Astronomical Society of Harrisburg](#), which is based near his hometown of Hershey, Pennsylvania.

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 . . .

Work on the website upgrade continues. In a recent email, Website Committee member Bernie Kosicki wrote, "I'm really impressed with our two young members who have done so much on the web site investigation - Maria Batista and Kristy Glidden. I hope we can recognize their energy and dedication." I second that. Members like Maria and Kristen provide an infusion of new blood that will keep ATMoB going long after we old-timers have faded into the sunset.

Due to the efforts of Chris Elledge, we got our first trial run of a recorded ATMoB meeting. I posted the links via [atmob\(announce\)](#) and [atmob\(discuss\)](#) and hope you've had time to take a view. If you didn't receive either of these emails, the links are

Recording with original raw audio:

<https://www.youtube.com/watch?v=IlcDGExjpro>

Recording with background noise reduction:

<https://www.youtube.com/watch?v=wP8fQwSzF4Y>

In mentioning this to my wife, she voiced the concern that members might not attend meetings that would now be accessible online. I pondered that for a moment and then realized that the heart of every ATMoB monthly meeting isn't what happens between the rap of the gavel and the conclusion of the guest speaker's presentation. It's the time before and after when members get together to share their astronomical adventures, ask or give advice, or simply catch up on job or family matters. An online posting can't do that! Posting our meetings on the web is a huge step forward for ATMoB. Could live streaming of the meetings be on the near horizon? Stay tuned!

As I mentioned last month, Steve Clougherty, Joe Henry, and others have proposed the idea of setting up a program to get more ATMoBers involved in observing. It was agreed that, besides the usual Sue French Fan Club deep-sky selection and the Las Vegas Astronomical Society's monthly deep-sky Challenge that are presented during the Observing Committee report at each monthly meeting, we add 5 deep-sky offerings from a club member. At the June meeting, we'll be introduced to "Steve's Picks," compliments of Steve Clougherty. If you'd like to submit picks of your own, let me know.

Final note – Last April I was asked if ATMoB could hold special seasonal observing sessions for members just getting into backyard astronomy or those who have been inactive for awhile and need a brush-up. The spring session, slated for Saturday, May 7, had to be cancelled due to inclement weather. We'll set our sights on a summer session in July – tentatively on the 28th.

Clear Skies!

~ Glenn Chaple – President ~

May Meeting Minutes . . .



Michael Rudenko *

Minutes of the ATMoB meeting held on May 12, 2016 in the Phillips Auditorium at the Harvard-Smithsonian Center for Astrophysics. President Glenn Chaple started the meeting at 8:00 pm.

- Phil Levine gave the Secretary's report.
- Eileen Myers gave the Treasurer's report.
- Tom McDonagh gave the membership report. Tom announced he will not be continuing as Membership Secretary, therefore the position will be available when the membership meets for voting in June. Glenn Chaple thanked Tom for his work as club Membership Secretary, those in attendance gave Tom a hearty thank you with applause.
- Bruce Berger and Glenn gave the Observing report:

Many members were happy to report success viewing the Mercury transit of the Sun on May 9th, despite the intermittent cloud cover. Bruce indicated that Kelly Beatty was at the CfA basement Solar room during the transit, where multiple displays from remote observatories lined the wall with a variety of Solar light wavelengths.

<http://aiawww.cfa.harvard.edu/>

Mars will be in a favorable position for viewing, high in the sky on May 12th. A grouping of Mars, Saturn, Antares, and the Moon, will be in close visual proximity.

The Sue French Object of the Month is M109, a spiral galaxy in Ursa Major. <http://apod.nasa.gov/apod/ap130523.html>

The Las Vegas Astronomical Society Observing Challenge of the Month is M100. <http://messier.seds.org/m/m100.html>

- The Clubhouse report was given by John Reed. John indicated that 3 mirrors were cleaned during the recent April 23rd, work party.

The "Mosquito Squad" company, applied an initial insecticide application on May 12 on the grounds of the Westford Clubhouse.

Infrastructure work is needed on all observatories and the Clubhouse.

The shutter on the ATMoB Research and Imaging Observatory (ARIO) is currently broken and a plea for members with mechanical expertise to help with the repair was given.

Volunteers are needed for the next May 21st work party.

- Mario Motta gave a presentation of a research project, headed up by Andrew Vanderburg at the Harvard CfA. Mario's Wingaersheek Observatory in Gloucester and Gary Walker at the Nantucket Loines Observatory are participating in the CfA research project by recording light curve data from the White Dwarf WD 1145 +017. The measured light curve has been very unusual. It is thought that a small planetesimal is orbiting this star every 4 ½ hours and due to its close orbit, is being torn apart. The theory is that the resulting debris field is creating this unusual light curve. Mario indicates this research will result in another published paper from the CfA, and there will also be an article in *Sky and Telescope* magazine this fall. Andrew Vanderburg's first paper on this research can be found at http://www.cfa.harvard.edu/~avanderb/wd1145_017.pdf.
- Announcements:
Glenn Chaple indicated that voting will be conducted during the June Annual Meeting to elect the new Executive Board for the 2016/2017 term.

Glenn indicated the first "Beginners Sky Tour" event at the Westford clubhouse was cancelled due to cloudy conditions. Upcoming sessions will be announced.

Ken Launie mentioned an interesting exhibit located in the Special Exhibitions Gallery at [Harvard's Collection of Historical Scientific Instruments](#). The exhibit called "Radio Contact: Tuning in to Politics, Technology, & Culture" has a collection of historical radios on display. Admission is free to the public.

http://chsi.harvard.edu/exhibit-focus?admin_panel=1

- Old Business:

Glenn Chaple mentioned that the Web Committee recently met to review changing the club's website. There will be field testing of potential website building software and web services. A proposed budget of \$1000 is under discussion for possible funding of the new website.

Video recording of monthly ATMob meetings was briefly discussed. The May ATMob meeting was recorded, for possible upload to YouTube. Members who cannot attend monthly meetings can benefit by accessing these videos.

- New Business: An Executive Board budget meeting is planned for May 25, to be held at the Westford Clubhouse.
- Snacks for the evening were provided by Tom McDonagh

Glenn Chaple introduced the guest speaker for the evening: Michael Rudenko, an IT Specialist at the [Minor Planet Center \(MPC\)](#), located in Cambridge, MA.

"The Minor Planet Center (MPC) is the single worldwide location for receipt and distribution of positional measurements of minor planets, comets and outer irregular natural satellites of the major planets. The MPC is responsible for the identification, designation and orbit computation for all of these objects. This involves maintaining the master files of observations and orbits, keeping track of the discoverer of each object, and announcing discoveries to the rest of the world via electronic circulars and an extensive website. The MPC operates at the [Smithsonian Astrophysical Observatory](#), under the auspices of [Division F of the International Astronomical Union](#) (IAU)."

Michael outlined the huge task of the MPC, considering the quantity of data being cataloged and stored. Some facts about the MPC database: 700,000 minor planet orbits, 150 million observations, 7900 comet orbits, 13 million undesignated single night observations, this data collected from some 300 observatories around the world.

Of particular interest are the so called "near earth objects" (NEO). An impact from one of these large objects could result in widespread damage here on Earth. Any natural object within 1.3 AU (astronomical unit), qualifies as a NEO. Michael gave an example of an impact which occurred in October 2008, where an object of perhaps 20-50 meters fell in the Sudan. This object was discovered just 19 hours before impact, illustrating how little advance notice there might be, giving almost no time for contingency plans.

Michael indicated there are only 4 current staff members at the MPC, but indicates funding may soon be available to hire 4

additional staff. Interested members, preferably with programming experience, can contact [Michael Rudenko](#).

Glenn Chaple adjourned the meeting at 9:30 pm

~ *Phil Levine - Secretary* ~

Nominations for 2016-2017 . . .

The 2016 Nominating Committee has proposed a slate of nominations to be voted on at the Annual Meeting in June. The nominees are:

President: Glenn Chaple
Vice President: Tom McDonagh
Secretary: Phil Levine
Membership Secretary: Chris Elledge
Treasurer: Eileen Myers
Member at Large: Bruce Tinkler
Member at Large: Al Takeda

~ *2016 Nominating Committee* ~
Steve Clougherty (Chair)
Tom McDonagh
Peter Bealo

Summary of the Minutes of the ATMob Executive Board Meeting May 25, 2016 . . .

Switch of bank services to Bank of America
Vote: yes, Board approved

Upgrade to ATMob website - Expenses for trial/demo
Vote: yes, Board approved

ATMob Research and Imaging Observatory - Catwalk addition
Motion withdrawn

"Mosquito Squad" spraying on the Clubhouse Observing Field
Vote: no, Board voted against continued use of the "Mosquito Squad"

Discussion and Vote on 2016-2017 Fiscal Budget
Vote: yes, Board approved

Note: For details, log onto the ATMob website and go to the Library and select Board Minutes (side bar).

~ *Phil Levine - Secretary* ~

Membership Report . . .

Membership count as of May 25, 2016 is at 304 individuals.

Please welcome our newest and returning members: James Finnegan, Andrew Foley, Joanne Fantini and Kristy Glidden.

The club's fiscal year begins June 1st. The membership renewal period begins on this date also. Please renew today!

Many members' subscriptions to *Sky and Telescope (S&T)* and *Astronomy* magazine are tied to their last renewal date. You can avoid interruption of subscription delivery by renewing now!

Renew by following the instructions outlined below:

On or after June 1st, 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 the Membership Secretary 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 pay using PAYPAL or personal check. Please feel free to contact me with any questions, concerns or issues.

Members that joined in 2015 are not required to renew until June 2017.

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 events, Clubhouse openings and interesting astronomy related discussions. Contact the Membership Secretary 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.

On a personal note, it has been my great pleasure to serve ATMOB as Membership Secretary over the last eight years. I have met many great people and learned much over this time. I look forward to continue serving this great organization as a volunteer for many years. I encourage all members to consider serving as a volunteer with ATMOB. It takes hundreds if not thousands of hours to keep such a world class organization running. The club offers many opportunities including star party outreach, Clubhouse and observatory maintenance and

improvement, club member training, education program development & executive board member service. It has been a rewarding, learning experience for me and I am sure you would feel the same way also!

~ Tom McDonagh – Membership Secretary ~

Clubhouse Report . . .



(L-R) Maria Batista and John Stodieck clearing invasive plants *

May 2016 Clubhouse Report

There were a total of twenty ATMOB members on hand for our monthly work party Saturday which took place on May 21st.

A lot of outdoor work was done on this day, and we would like to make a special note of appreciation to John Blomquist who hauled his tractor mower to the Clubhouse a few days after the work session to complete some lawn mowing.

Glenn Chaple, Mike Hill and Al Takeda spent a couple of hours mowing the observing field.

Thanks to Al Takeda for the fine trimming and weed whacking.

Bill Toomey trimmed low hanging branches and hauled away an impressive amount of yard debris. Maria Batista and John Stodieck cut and trimmed the growth along the West side of the field.

Dave Prowten took the initiative and replaced the broken window over the bulkhead door.

Charlie and Jim Gettys have started a project to replace the ATMOB Research and Imaging Observatory (ARIO) dome slit shutter motor and drive system with a state of the art mechanism which should be completed soon. John Blomquist is supervising the machining of the components.

Sai V. evicted a family of mice who took up residence in the 17-inch Dob.

John Maher and Barbara Bosworth installed new USB cable under the clamshell dome for an equipment upgrade.

Thanks to Eileen Myers, Eric Johannsen and Sai Vallabha for arranging a pizza delivery and making a wonderful salad.

John Reed arrived on the following Wednesday to meet with the furnace maintenance man who will be ordering parts for our new blower motor.

Our next scheduled work session will be held on Saturday June 18th.

Thanks to the following volunteers for all of their efforts during the month of May: Maria Batista, John Blomquist, Barbara Bosworth, Glenn Chaple, Steve Clougherty, Charlie Gettys, Jim Gettys, Joe Henry, Mike Hill, Eric Johannsson, Dick Koolish, John Maher, Eileen Myers, Dave Prowten, John Reed, Art Swedlow, John Stodieck, Al Takeda, Bill Toomey and Sai Vallabha.

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

Clubhouse Evening Schedule	
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		
June 11	John Reed	Sai Vallabha
June 18	WORK PARTY # 6 Dave Prowten **	
June 25	Phil Rounseville	Joe Wolfe
July 2	Joe Henry	Volunteer Needed
July 9	George Paquin	John Small
July 16	WORK PARTY # 7 John Maher **	

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

For Sale . . .

12.5" F/5 Newtonian Dob available for sale to any ATMOB member or friend who would use this superb instrument. Excellent primary mirror, well equipped, many extras. Price is negotiable.

Please contact Steve Clougherty for details.
 781-784-3024
stvclougherty@gmail.com

~ *Submitted by Steve Clougherty* ~

Sky Object of the Month . . .

June 2016

Courtesy LVAS Observer's Challenge***

Messier 5 – Globular Cluster in Serpens Caput
 Magnitude – 6.2, Dimension – 17'



M5 image by Mario Motta M.D.

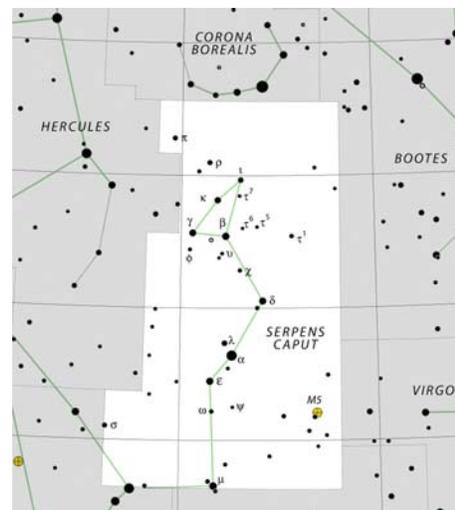
“Beautiful nebula discovered between Libra and Serpens, close to the sixth-magnitude star Flamsteed 5 Serpentis.” Charles Messier (1764)

“This superb object is a noble mass, refreshing to the senses after searching for fainter objects”. Admiral Smyth (1838)

“A beautiful assemblage of minute stars, 11-15 mag. Greatly compressed in the centre.” T.W. Webb (c. 1859)

“Myriads of glistening points shimmering over a soft background of starry mist.” Mary Proctor (1924)

These comments about Messier 5 say it all. This is one of the finest globular clusters in the northern sky, rivaling Messier 3 in Canes Venatici and M13 in Hercules. Discovered by the German astronomer Gottfried Kirch in 1702, Messier 5 is about 25,000 light years away.



www.constellation-guide.com

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

~ Glenn Chaple – Observing Committee ~

Mercury Transit Observing . . .



The Clubhouse Observing Field on the morning of the Mercury Transit *

Clouds generated a bit of angst as ATMoB members observed the planet Mercury transiting the Sun on Monday, May 9th at the Clubhouse. The sky cleared around first and last contact but clouds plagued us during mid-transit.

At least 15 members saw the tiny spot slowly moving across the face of the Sun throughout the day. Of particular note, Paul Cicchetti, using a Hydrogen-alpha telescope, visually observed Mercury cross in front of a solar prominence before first contact began.



Mercury before 3rd Contact. TMB92, T1i DSLR, Herschel Wedge. *

For more transit photos, go to the [ATMoB website](#) and look in the Gallery section.

~ Al Takeda – Newsletter Editor and Member at Large ~

Waitt's Mountain Star Party . . .



ATMoB scopes on Waitt's Mountain *

On Saturday, April 30th, ATMoB members put on a star party at Waitt's Mt for the residents of Malden, MA. The event was sponsored by the Malden Cultural Council and [Malden Reads \(Malden Reads is a community reading program in Malden\)](#).

The estimated 200 attendees were shown the planet Jupiter and 4 of the Galilean moons, double stars and star clusters.

A big thank you to ATMoB members Paul Courtemanche, Phil Rounseville, Al Takeda and Bob Toop.

~ Al Takeda – Newsletter Editor and Member at Large ~

A Jovian Bear-hug . . .

It was Night 2 of the 2016 edition of the annual week-long OzSky Star Safari (<http://www.ozsky.org>), held near Coonabarabran, New South Wales (NSW) by the volunteers at the Three Rivers Foundation (3RF) of Australia (<http://www.3rf.com.au>). The opening night had featured good transparency, but bad seeing conditions. The tables had turned this night, which meant that the 38 visiting observers and 8 OzSky volunteers couldn't get their usual fill of the distant (and faint) deep-sky delights of the southern skies, with all the Obsession and SDM Dobs at their disposal each equipped with Obsession's Argo Novis digital setting circles, plus matched Nagler and Ethos eyepieces up and down the range. (Editor: SDM is a Dobsonian manufacturer located in Victoria, Australia, specializing in building custom 20 to 40-inch Dobsonians). A not-so-distant Jupiter rode to the rescue with an unusual display, less than a month past opposition – it was in the clear until well past midnight.

For the 10 minutes before 11 pm local time on April 3, all 4 Galilean moons were visible around the 43" disk of Jupiter, with the furthest moon (Ganymede) a scant 29 arc-seconds off its limb. Callisto had just finished its transit across the southern polar region, while Io was about to start its own transit close to the equator. At their P1 and P4 contact points, the moons looked like pimples on the limb of Jupiter. The disk of Callisto was

spectacularly sharp against the Jovian hues, even at 232X. Alex and James Pierce, both 3RF volunteers and planetary enthusiasts, tracked the transits and the close conjunction with their 120mm Takahashi refractor and 16" SDM reflector respectively – many thanks for their skill, setups and above all, their willingness to devote an extended stretch of scope-time to a single object!

While most observers had specific wish-lists and worked in groups, I opted to be a floater; it was my first time at OzSky and the dark Coona skies confirmed that I am just no good at "faint fuzzies". Freed of that observing albatross, my choice moments included a view of the Carina peanut (aka the Homunculus nebula surrounding Eta Carinae) that Andrew Murrell conjured up in the 30" SDM, the 3 minutes spent listening to Andrew at the eyepiece ticking off, at first look, the exasperatingly dim components of Hickson Compact Group 31 (I barely saw one!), the top 5 great Globular clusters all in one night (47 Tucanae, Omega Centauri, NGC 6752 in Pavo, plus the pair familiar to us northerners: M22 and M13), the exquisite sapphire-like duo of Dunlop 127 (HIP 63422A+63424B), and last but not least, comet 252P above M14.

It was a remarkable week spent with a diverse bunch of observers and a superb team of volunteers led by Lachlan MacDonald and Tony Buckley. 3RF is now offering a second week of observing to better cover the other half of the celestial sphere, in October (their Spring). A comprehensive report on OzSky 2014, authored by Paul Winalski of the New Hampshire Astronomical Society, can be found in the May 2014 edition of the NHAS Observer (page 9, <http://nhastro.com/files/newsletter/2014-05.pdf>).

~ Submitted by Jun Ramaswamy ~

The Van Vleck Observatory Centennial Symposium and StarConn . . .

Wesleyan University Public Event
Center for the Arts
Middletown, CT
Thursday, June 16, 2016

This Thursday-only event includes the annual StarConn convention.

Please join the Astronomical Society of Greater Hartford (ASGH) & the Van Vleck Observatory at Wesleyan University in celebrating the 100th Anniversary of the Van Vleck Observatory at Wesleyan University in a full day Symposium.

The Centennial Celebration will feature a panel of guest speakers on the history of the newly refurbished 20" Alvan Clark refractor. Faculty will also be giving talks on galactic astronomy, star formation, and other research programs at Wesleyan.

Weather permitting, ASGH will have a night of observing through the newly restored magnificent 20" Alvan Clark

Refractor, which was featured in *Astronomy Magazine's* October 2015 issue.

More information & registration for the Symposium/StarConn please visit: <http://www.wesleyan.edu/observatory/symposium.html>

Stellafane - The Original Star Party . . .

The 81st Convention will be held the first weekend of August, August 4-7, 2016. The location is a national historic landmark site, and the birthplace of American Amateur Telescope Making and Astronomy. Located under the dark skies above a rural Vermont hilltop, Stellafane is the home of the Porter Turret Telescope, a 13" Schupmann telescope, and other fine on-site instruments. It is best known for the annual home-made telescope optical and mechanical competition. Camp or stay at local lodging. There is an onsite food concession. The Keynote Speaker will be NASA Astrophysicist Fred Espanek, "Mr. Eclipse". See www.stellafane.org for information. You may also be interested in learning about imaging equipment and techniques be attending the Sub-Arcsecond Spatial Resolution Imaging presentations at Springfield's historic Hartness House, home of the Hartness Turret Telescope and the Hartness-Porter Museum of Amateur Telescope Making.

See <http://stellafane.org/convention/2016/2016-hhw.html> for more information.

For Sale . . .

Due, to changes in my vision, I have two TELE-VUE eyepieces for sale.

No. 1 - 12mm F.L. ETHOS with 100 degree Apparent Field of View Excellent Condition - originally, \$640 , asking \$475.

No. 2 - 3mm. F.L. RADIANT with 57 deg. AFOV. Excellent Condition - originally \$340, asking \$225.

ALSO:

No. 3 Tektronix Model 2236, 100 MHZ Oscilloscope \$50

No. 4 Casio Music Keyboard, \$25 or B.O.

No. 5 OKIdata Laser Color Printer, C3400. It cost \$300, asking \$25

Pick up in Burlington, MA or add UPS shipping.

Please reply directly to the seller at:

["paulvalleli@gmail.com"](mailto:paulvalleli@gmail.com)

~ Submitted by Paul Valleli ~

Editor: * Photos by Al Takeda unless otherwise noted.

July Star Fields DEADLINE

Sunday, June 26th

Email articles to Al Takeda at

newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed June 6, 2016

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

EXECUTIVE BOARD 2015-2016

PRESIDENT: Glenn Chaple (978) 597-8465

VICE PRES:

SECRETARY: Phil Levine (781) 956-6509

MEMBERSHIP: Tom McDonagh (617) 966-5221

TREASURER: Eileen Myers (978) 456-3937

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

Al Takeda (508) 494-7877

PAST PRESIDENTS:

2014 - 15 Neil Fleming

2012 - 14 Mike Hill (508) 485-0230

2010 - 12 Bernie Kosicki (978) 263-2812

2006 - 08 Virginia Renehan (978) 283-0862

COMMITTEES

CLUBHOUSE : John Reed (781) 861-8031

Steve Clougherty (781) 784-3024

David Prowten (978) 369-1596

OBSERVING: Bruce Berger (978) 387-4189

NEWSLETTER Al Takeda newsletter@atmob.org

PUBLIC OUTREACH

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.

Jun 4 New Moon

Jun 5 Mercury at greatest western elongation, 24 deg. (Morning)

Jun 12 First Quarter Moon (Moonset at midnight)

Jun 20 Full Moon, Summer Solstice

Jun 27 Last Quarter Moon (Moonrise at midnight)

July 4 New Moon

July 7 Pluto at Opposition