



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. 1 January 2016

This Month's Meeting . . .

Thursday, January 14th, 2015 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

Member Presentations Night

This month, our speaker roster is comprised of a quintet of ATMoB members. *Star Fields* Editor Al Takeda kicks things off with a presentation that takes us to the ATMoB Clubhouse in Westford. If you've never been there, you'll learn what goes on and hopefully be encouraged to drop by. If you're a Clubhouse regular, some fond memories may be in store!

Former *Sky and Telescope* Editor-in-Chief Bob Naeye then relates his recent trip to observe through the 100-inch telescope on Mt. Wilson. Bob notes, "The 100-inch has only recently been available for visual observing, and that is something that a lot of ATMoB members might be interested in. I can explain who to contact and how to sign up." Imagine having access to the very telescope used by Edwin Hubble nearly a century ago!

Finally, Dick Koolish, Ken Launie, and Alan Sliski recount their recent trip to the Antique Telescope Society meeting at Lick Observatory. They'll be talking about REAL antique telescopes – not those purchased by some of our senior ATMoB members during their early years (no names mentioned!).

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 . . .

Happy New Year, ATMoB Nation! OK, the word "Nation" is more appropriately associated with an earth-bound sports team, as in "Red Sox Nation." And since our "playing field" extends

far beyond earthly constraints, I'll rephrase. Happy New Year, ATMoB Universe! Now that's way over the top! Let's just stick with "Happy New Year, ATMoB".

We've good reason to hope for clear skies this year. Glancing over the Sky Month by Month section the *2016 RASC Observer's Handbook* (I'll interrupt with a shout out to ATMoB Treasurer Eileen Myers for making this valuable guidebook available to the club membership at an amazing discount). I noted a couple of key locally visible events. First up is the January 9 Venus/Saturn conjunction, which I mentioned during the Observing Committee report at last month's meeting. An hour before sunrise on that date, the two planets will be less than one-half degree apart – an impressive sight, whether by naked eye, binocular, or telescope. Even more striking will be the Venus/Jupiter conjunction on the evening of August 27. Just 4 arc minutes apart, the two planets will fit comfortably into a medium power telescopic field.

The premier event of 2016 – at least locally, as the March 9 total solar eclipse is visible only from Indonesia and the central Pacific – will be a transit of Mercury on May 9 (that's a Monday, so if you're gainfully employed, plan on a sick day). We get to see the WHOLE thing, starting with ingress at about 7:15 am and winding down with egress around 2:40 pm.

Besides 2016's celestial offerings, we can look forward to monthly ATMoB meetings, gatherings at the Westford Clubhouse, ATMoB-sponsored star parties, and the occasional astronomy convention (Stellafane, anyone?). On cloudy nights we'll be monitoring the internet and perusing our favorite astronomy magazines in an effort to catch up on the latest space-related news. Who knows what amazing cosmic discoveries will be made in 2016?

Clear Skies!

~ Glenn Chaple – President ~

December Meeting Minutes



Dr. Stella Kafka *

Minutes of the ATMoB meeting held December 10, 2015 in the Phillips Auditorium at the Harvard-Smithsonian Center for Astrophysics.

- ATMob President Glenn Chaple called the meeting to order at 8:00 pm.
- Phil Levine gave the Secretary's report of the November meeting.
- Eileen Myers gave the Treasurer's report. Eileen mentioned the cost of mailing paper copies of the Club Newsletter was not cost effective, compared to electronic format. She suggested that club members receiving the printed Newsletter might consider receiving the electronic format instead.
- Glenn Chaple gave the Observing report.

Various club members reported observations of the Moon-Venus and the Moon-Aldebaran occultation.

Upcoming observing opportunities:
Geminid meteor shower Dec 14, Mercury Dec 28

Venus-Saturn January 9.

Several members reported observing comet Catalina; Mario Motta posted an image of comet Catalina on the ATMob website.

The Sue French object of the month: Iota Cassiopeia: <http://www.deepskywatch.com/Astrosketches/doubles/Iota-Cassiopea-sketch.html>

The Las Vegas Astronomical Society object of the month: NGC 1023 <http://www.lvastronomy.com/observing-challenge>

Glenn Chaple's object of the month: M52 <http://messier.seds.org/m/m052.html>

- Steve Clougherty gave the Clubhouse report. At the November work party there were 26 volunteers. Clean up work was accomplished in the former evaporator room and the near barn attic. Four people received training for the ATMob Research and Imaging Observatory. Another training session is planned for January. The Clamshell Observatory is up and running, for training see John Maher. The Schupmann telescope backup mirror is currently out for re-coating. The next work party is scheduled for Dec 26th.
- Announcements:
Eileen Myers mentioned that the New Year's Eve Party celebration is to begin at the Clubhouse at 6:30 pm on December 31st.

One of the members brought up the importance of joining the [International Dark Sky Association \(IDA\)](http://darksky.org/) (<http://darksky.org/>). Mario Motta reported that 3 towns on the North Shore (Gloucester, Danvers, Salem) have decided to install 3000

Kelvin (3K) LED outdoor lighting, and several other towns on the North Shore are now considering 3K outdoor lighting. Mario mentioned that 3K lighting is "leveraged" to be at the same cost as a 4000 Kelvin (4K) one, an important factor as towns weigh the costs of implementation. Mario also mentioned his input on an American Medical Association (AMA) White Paper, detailing the health impact of glare – 3K LED vs. 4K LED lighting.

- Old Business: none
- New Business: Happy Holidays everyone!

Glenn introduced our guest speaker, Dr. Stella Kafka, Director of the [American Association of Variable Star Observers \(AAVSO\)](http://www.aavso.org/). Dr. Kafka's talk was titled: "Type Ia Supernova Progenitors".

Dr. Kafka presented background on why Supernovae Type Ia (SNeIa) hold much promise as tools for obtaining a better understanding of dark matter, and can be used as "standard candles" for obtaining distance measurements within the local galaxy neighborhood. The 2011 Nobel Prize in Physics was awarded to two groups of astronomers for their work determining that our universe is expanding at an accelerated rate, through observations of distant supernovae.

Dr. Kafka discussed the importance of verifying a fundamental assumption: whether SNeIa are in fact "standard candles", whether the luminance signature from SNeIa share the same properties, and can in fact be used as a standard distance measuring tool.

The key to our understanding of whether SNeIa are "standard candles" might be found by examining SNeIa progenitors, or the type of binary stars in their "pre-SNeIa" state. Dr. Kafka discussed the single and double star degenerate scenarios. The first theory might be a single star degenerate scenario, being a white dwarf star and either a giant star or a main sequence star. The second theory is the double degenerate scenario, being two white dwarf stars.

Analysis of spectral signatures from SNeIa can determine whether a central star remnant is present. A UV or bolometric light curve might indicate a central star remains after a SNeIa event. In this scenario, most likely the binary stars were both white dwarf stars. Light curves from B-band, and V-band seem to be best at determining if no central star is left after a SNeIa event. Here the progenitors were most likely a white dwarf and either a giant or main sequence star. Factors impacting data from light curves are inter-stellar dust, and accretion wind evolution.

The meeting was adjourned at 9:30 pm

~ Phil Levine - Secretary ~

Membership Report . . .

Membership count as of December 31, 2015 is at 275 individuals. At the peak, club membership stood at 327 members in 2015.

Please seek out and welcome our new club members:

David Long
 Marcos Pareto
 Christopher Elledge
 Roger Ivester
 David Kosicki
 Lucas Plesh

A number of members were removed from the ATMOB-discuss list for excessive emails bouncing back to the "mailman server" on December 25th. These individuals all used the rcn.com service. Our Web Administrator, Brewster LaMacchia, has reinstated these individuals, but you should be aware that rcn.com may be blocking emails from the atmob.org server. We find this to be the case with the AOL service also. If you feel you are not receiving emails, please contact me 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. This is a simple way to make your donation go twice as far.

~ Tom McDonagh – Membership Secretary ~

Clubhouse Report . . .



Steve Clougherty, Eric Johansson and Gerry Sussman refurbishing the Blue Dob*

December 2015 Clubhouse Report

We had a total of 15 members and friends of the ATMOB volunteer at our monthly work session which took place on Saturday, December 26.

The priority for the day was cleaning and organizing the Clubhouse for the upcoming New Year's Eve party. Eileen Myers and Al Takeda took charge of cleaning, repairing and decorating the Clubhouse. Thanks to Paul C., Eric J., Dick K., Brian M., John M., Bob T. for their assistance.

Paul Cicchetti moved the mowers from the metal shed to the far barn, then spent a considerable amount of time prepping the club's snow blower. Now that it is in top working condition we will be assured of a mild Winter!

Gerry Sussman and Eric Johansson, with Al Takeda assisting, tackled the rehab of two club scopes, the 8-inch Blue Dobsonian (Dob) and the 6-inch White Dob, both of which are dedicated loaner scopes available for any member to use.

Dave Prowten began work on a 13-inch truss tube Dobsonian and is retro-fitting a new Astrosystems mirror cell to a pre-cut baltic birch mirror box and ground board.

Many Thanks to Tom Fill and his son Chris for the donation of two crates of books for the ATMOB library.

Bruce Berger will be offering small group instruction on the operation of the ATMOB Research and Imaging Observatory (ARIO) beginning in January. Please contact Bruce if you would like to learn to operate the C-14 telescope on the Paramount equatorial mount.

For those who are happy with using a low tech telescope, see Steve Clougherty if you would like to operate and use our 17.5-inch Dob this Winter.

Once again, thanks to our lunch crew of Eileen Myers and John and Monique Reed for shopping, cooking and preparing the work party lunch.

Thanks to the following friends and members who made this such a productive session: John Blomquist, Paul Cicchetti, Steve Clougherty, Tom and Chris Fill, Eric Johansson, Brian Maerz, John Maher, Eileen Myers, Dick Koolish, Dave Prowten, John and Monique Reed, Phil Rounseville, Al Takeda and Bob Toop.

The next work party is scheduled for Saturday, January 23rd.

~ Clubhouse Committee Chairs ~

~ Steve Clougherty, John Reed and Dave Prowten ~

Clubhouse Saturday Schedule		
Jan 9	Joe Henry	Cheryl Rayner
Jan 16	Phil Rounseville	Joe Wolfe
Jan 23	WORK PARTY # 1 No Duty Scheduled *	
Jan 30	Steve Clougherty	Jim Gettys
Feb 6	John Panaswich	John Small
Feb 13	Nina Craven	Brian Maerz
Feb 20	WORK PARTY # 2 No Duty Scheduled *	
Feb 27	Bruce Berger	Glenn Meurer

* Closing time for the Clubhouse is determined by the work crew

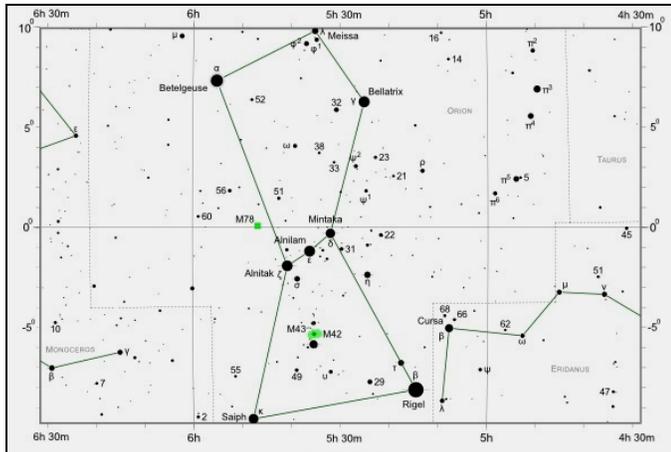
Sky Object of the Month . . .

January 2015

Courtesy LVAS Observer's Challenge*

Messier 78 – Diffuse Reflection Nebula in Orion

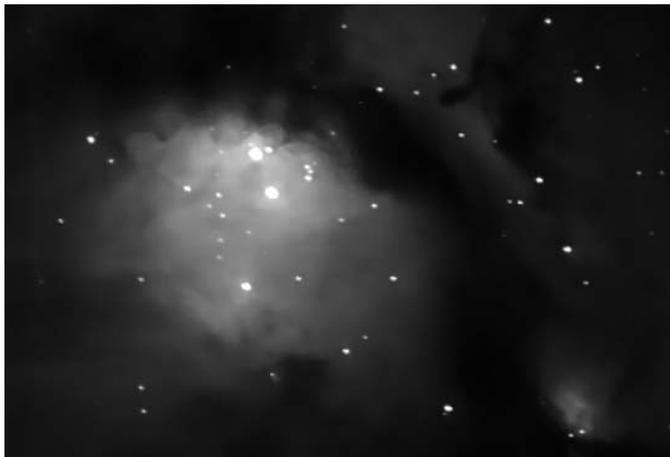
Magnitude 8.3, Dimensions 8' X 6'



freestarcharts.com

M78, Orion's "other" Messier nebula, has the distinction of being the brightest diffuse reflection nebula (one whose light comes from nearby or embedded stars) in the sky. M42 and similar bright luminaries like M8, M17, and M20 are basically diffuse emission nebulas that give off their own light.

To find M78, make a low-power scan of the area 3 degrees northeast of Alnitak (the zeta [ζ] star in Orion's belt – see the finder chart below). M78 was discovered by Pierre Mechain in early 1780 and was included by Messier in his Catalog later that year. At an approximate distance of 1600 light years, it spans an area some 10 light years across.



M78 image by Mario Motta

*The purpose of the LVAS Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone that is interested, and if you are able to contribute notes,

drawings, or photographs, the LVAS will be happy to include them in our 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 ~

ATMoB Welcomes 2016 . . .



The first ATMoB New Year's Eve Party held at the Clubhouse was for the Millennium. This year's was the club's 17th New Year's Eve party.

Members of our club and their families came out and enjoyed a fun time. There was live music, dancing, group singing, good conversations, and eating. No resolutions had to be broken at this party! There was much healthy food to choose from, as well as all kinds of sweet and healthy desserts. There was an aurora that evening, but was unseen due to heavy cloud cover. Folks were still sitting in a large circle having a group conversation at 3:00 am.



Yummy Desserts! *

Creative decorating was done by Paul Cicchetti, Eric Johansson, Dick Koolish, Brian Maerz, John Maher, Eileen Myers, Al Takeda, and Bob Toop. Al, Julie Kaufmann, and Eileen maintained the food tables during the party. The team taking down decorations on January 2nd, led by Al and Eileen, included Glenn Chaple, George Pacquin, and John Reed, who were all rewarded by a traditional bagels and lox with all of the fixings brunch, accompanied by George's delicious homemade gravlax.



Julie Kaufmann leading the dancers *



(L-R) Guitar musicians Tony Costanzo and Claude Galinsky *

Eileen and John R. did the major party shopping. Our fantastic musicians were Tony Costanzo (Guitar), Claude Galinsky

(Guitar), Ed Los (Fiddle). Dance instruction (folk, swing, disco, line dancing) and recorded music was provided by the talented Julie Kaufmann. Snow and ice removal shoveling just before the party started was led by Al with the team of Phil Rounseville, Joe Wolfe, and Eileen.

Wishing a Happy and Healthy 2016 to All.



~ Co-Hosts Eileen Myers and Al Takeda ~

Lunar Occultation of Aldebaran . . .

On the evening of Tuesday, January 19th, the magnitude +0.9 star Aldebaran, in the constellation of Taurus, will be occulted by the waxing gibbous Moon.

[According to the International Occultation Timing Association \(IOTA\)](#) data for the Boston, MA area, Aldebaran will "wink out" at 21 hrs 35 minutes and 28 seconds EST - 9:35:28 pm EST, January 19th).

Aldebaran will reappear an hour later at 22 hrs 48 minutes 44 seconds EST - 10:48:44 pm EST, Jan. 19th).



~ Al Takeda – Newsletter Editor ~

Editor: * Photos by Al Takeda unless otherwise noted.

February Star Fields DEADLINE
Sunday, January 24th

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed January 8, 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

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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 Renchan 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 Standard Time (EST) from Universal Time (UT) subtract 5 from UT.

- Jan 9 New Moon
- Jan 16 First Quarter Moon (Moonset at midnight)
- Jan 20 Aldebaran Occultation 02:35:28 UT (21:35:28 EST, Jan 19th)
- Jan 23 Full Moon
- Jan 31 Last Quarter Moon (Moonrise at midnight)
- Feb 6 Mercury at greatest western elongation, 26 deg. (morning)
- Feb 8 New Moon
- Feb 15 First Quarter Moon (Moonset at midnight)
- Feb 22 Full Moon