



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. 20, No. 9 October 2008

This Month's Meeting...

Thursday, October 9th, 2008 at 8:00 PM
Phillips Auditorium
Harvard-Smithsonian Center for Astrophysics
Parking at CfA is allowed for duration of meeting

This month we welcome Dr. Arne Henden, Director, AAVSO (American Association of Variable Star Observers) who will talk about "**Amateur Contributions in the Era of Surveys**".

A century after the famous Harvard Sky Patrol, there is renewed interest in all-sky surveys. Commercial CCDs and telescopes make this possible at modest cost for bright objects, and large, wide field professional systems like PanSTARRS and LSST extend coverage to fainter magnitudes.

The question has been raised: where can amateurs contribute scientifically with this level of competition? The AAVSO has been carefully monitoring the situation, and this talk will highlight the many areas where amateur observations are useful today and will remain so into the foreseeable future.

Dr. Henden is a Senior Research Scientist for the Universities Space Research Association at the United States Naval Observatory in Flagstaff, Arizona. His primary research interests are in the optical and near infrared imaging, variable stars, gamma ray burst afterglows and professional-amateur collaboration.

He has co-authored over a hundred refereed publications, including 3 papers in the journal *Nature*. He has several papers in progress, mostly related to gamma-ray burst afterglow observations with various worldwide collaborations, or cataclysmic variables for the Sloan Digital Sky Survey (SDSS). In collaboration with Dr. R. H. Kaitchuck, he wrote the textbook *Astronomical Photometry*, widely regarded as a fundamental text for learning photometry.

Henden received his Ph.D. in Astronomy from Indiana University in 1985. He began his post-Ph.D. career as a Research Associate at The Ohio State University upon graduation. More biographical information is available at <http://www.aavso.org/news/henden.shtml>.

Headquartered in the Clinton B. Ford Astronomical Data and Research Center in Cambridge, Mass., the AAVSO is a non-profit, scientific organization with members in 46 countries. It coordinates, compiles, digitizes and disseminates observations on variable stars to researchers and educators worldwide. It was founded in 1911 as part of the Harvard College Observatory and became independent in 1955.

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...

Astronomy has something for everyone - whether they are a neophyte or a seasoned observer. The equipment needed ranges from telescopes of all sizes to a mach-one eyeball (supernova 1987a was discovered when the astronomer credited to the find stepped outside of the observatory of one of the world's largest telescopes and looked up).

Like all sciences there are many categories in which one can spend their time. While I personally enjoy the planets and variable stars, others may enjoy hunting down fuzzy galaxies and nebulae that reside at the light gathering limit of the telescope. Our talks at the CfA range from stellar evolution, black holes and cosmology.

Unlike other sciences, this is one of the few in which a non-professional can still make a significant contribution. Observation time on today's research size telescopes is rare and that time used is usually spent looking into deep space to gather information that will help ferret out the beginning of the universe. However, there is still work needed in our local neighborhood and further out into the Milky Way in which amateurs can still contribute. The first would involve monitoring and reporting changes on surface (or cloud activities) of planets in our solar system where amateurs can submit, images, observations and drawings to the Association of Lunar and Planetary Observers (ALPO). The second is monitoring the brightness of stars in our galaxy which provides data to stellar astrophysicists to test or generate models of stellar evolution. Brightness observations can be submitted to the American Association of Variable Star Observers (AAVSO) which acts as a repository and resource of the data for the aforementioned astronomers.

What is really great about this segment of astronomy is both beginners and veterans alike can make and submit observations. We've previously had AAVSO member Glenn Chaple give a seminar on making visual observations of variable stars, and moving forward the club will repeat that seminar and also provide other seminars on how to find one's way around the night sky to locate variable stars or other

objects. Also, once the C-14 is operational again, we'll have a session on how to use a CCD camera to image and measure the brightness of objects beyond the limits of the visual observer.

I'm very excited to have Dr. Arne Henden, the AAVSO Director, speak at this month's meeting and to hear him discuss the AAVSO and the contributions that still can be made by amateurs to one of the world's core sciences. Get to the meeting early to make sure you have a seat. I'm sure others will be just as excited as me to hear his talk,

~ *Stephen Beckwith, President* ~

September Meeting Minutes . . .

The September meeting of the Amateur Telescope Makers of Boston featured Robert "Bob" Naeye, editor in chief of *Sky & Telescope* who discussed NASA's Gamma-Ray Large Area Space Telescope (GLAST), recently renamed the FERMI Gamma Ray Space Telescope.

After serving a one year stint at the NASA Goddard Space Flight Center as their Senior Science Writer in the Astrophysics Science Division, Bob returned to Boston to become the editor in chief at *Sky & Telescope* magazine. While at NASA, Bob was able to work with the GLAST/FERMI science team on a daily basis and considered it a great experience to witness a mission develop right before it was launched.

Naeye started by describing gamma rays "as the most highly energetic form of light on the electromagnetic spectrum." Those photons are "millions to billions of times more energetic than a photon that we see with our eyes. They are so energetic that Einstein's equation $E=mc^2$ matters because they behave like subatomic particles."

Gamma ray sources include the centers of galaxies such as M87 which harbors a super massive black hole at its core. The jet that is emanating from the center is producing gamma rays. Another source is the Gamma Ray Burst (GRB) which is "a powerful explosion in massive stars that eject these relativistic high-speed jets and collision of these particles inside the jet gives off the gamma rays." Shock wave collisions inside of supernova remnants also give off gamma rays. Even within our own Milky Way galaxy "matter and antimatter are colliding and annihilating each other giving off gamma rays."

The GLAST/FERMI Gamma Ray Space Telescope is an international collaboration and is a follow-up to NASA's Compton Gamma Ray Space Telescope. Compton was NASA's 2nd "great space telescope" which includes the Hubble Space Telescope, the Chandra X-ray Observatory and the Spitzer Space Telescope. GLAST/FERMI "was launched into a 350 mile high circular orbit, about a 90 minute low Earth orbit. It's designed to last at least five years but with the expectation that it will continue for at least 10 years of science."

The "telescope" has 2 main instruments: the GLAST Burst Monitor (GBM) and the Large Area telescope (LAT).

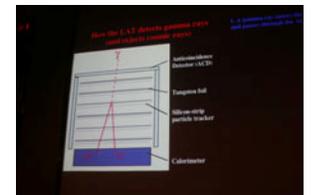
The GBM is a partnership between NASA, the University of Alabama Huntsville, and the Max Plank Institute in Germany. The instrument's field of view covers the entire sky not occulted by the Earth and is sensitive to very high energy x-rays and low energy gamma rays.

The LAT is a particle detector whose sensitivity is 30 times more sensitive, has better spectral resolution and covers a much larger, broader range of gamma ray energies than Compton. It watches 1/5 of the entire sky at any given moment and can locate sources more precisely. According to Naeye "the LAT was built at the University of California at Santa Cruz and other laboratories. There were also many vital contributions from France, Italy, Japan and Sweden."

In operation, the GBM will detect a gamma ray source and slew the satellite so that the gamma ray burst will be in the LAT's field of view. This will be done automatically without any intervention from the ground.

GLAST/FERMI has already stated to look at blazars and gamma ray bursts. The first light data from 4 days of observations equaled 1 year of data from Compton. The GBM is currently averaging at least 1 gamma ray burst per day.

Naeye speculated that GLAST/FERMI data might pave the way for new discoveries such as how flares are produced from our Sun, the origins of cosmic rays or to give us profound insights into the nature of Dark Matter.



(L-R) Bob Naeye and a diagram of the GLAST/FERMI LAT detector

The Secretary's report was given by Al Takeda, Tom McDonagh presented the Membership report, making a point of recognizing new members and the Treasurers report was made by Nanette Benoit.

Virginia Renehan gave the Star Party report. Star Party announcements are on the web and if a member has problems accessing the website stop by the Clubhouse and someone can assist you. Virginia is also working with Tom M. on the New Member information packet. Name tags were also passed out to all of the new members present.

Steve Beckwith of the Observing Committee announced that a seminar on balancing an equatorial mount would be taking place on October 11th. Shortly after that another class will be offered in November dealing with CCD imaging for variable stars. He mentioned that the C-14 is not communicating with the computer.

Steve Clougherty of the Clubhouse Committee referred the membership to this month's detailed write-up in Star Fields. He

mentioned that there was a tremendous turnout in July and August for various work sessions. "If anyone can come up to the Clubhouse for a couple of hours we have something for you to do and something for you to eat."

Steve B. mentioned that there is an Executive board meeting on Sept. 16, and members should contact him if they would like to bring up any issues.

It was announced that the 2nd club picnic is to be held on Sept 20th.

Steve B. reported on some of the Executive Board ideas to disseminate some of the club's knowledge to the rest of the membership. One of the ideas that will be implemented is a local mentoring program. Another idea is to have people designated as "experts in certain disciplines."

Bernie Volz reminded the members that are signed up for the 2009 China eclipse trip that it is time to reserve your airline flights. The cheapest flights are on Continental at about \$1500 but they are selling out.

Mario Motta announced that there are a few cancellations and that there a few rooms available. Contact Mario as soon as possible.

Mario also talked about his meeting with Congress on dark sky legislation. They had 40 members attending the meeting; mostly from the Western states, a couple from the South and one from New England. He also submitted a resolution that states that light pollution is bad for drivers at night to the American Medical Association (AMA).

Gary Walker announced that (1) the annual AAVSO meeting will be held in Nantucket on Oct. 16-18, (2) that volunteer work doing data reduction is available at the Maria Mitchell Observatory and (3) his daughter Elizabeth, who is now a naval test pilot at China Lake, has been notified that she is on the candidate list to qualify to be a NASA astronaut.

Bruce Berger presented images from his eclipse trip to China. Fellow ATMob member Howard LeVaux and his son also accompanied Bruce on his trip.

~ *Al Takeda, Secretary* ~

Clubhouse Report . . .

September Clubhouse Report

You may have noticed that the sign-in log on the clubhouse telephone desk is our historical information source. Your names on this log generate the attendance numbers that determine our schedule of clubhouse activities. Please remember to write your name in the log each time you visit our clubhouse.

During September, the clubhouse was visited by our members 164 times: 10 on Sundays, 10 on Mondays, 14 on Tuesdays, 5 on Wednesdays, 17 on Thursdays, 12 on Fridays,

and 96 on Saturdays including 48 that attended the successful Fall Picnic on September 20th. Our Clubhouse is utilized by our members.

A big thank you is in order to the 21 members who volunteered their efforts on our Full Moon Saturday work session on September 13th: Vlad Vudler, Sai Vallabha, Bill Toomey, Al Takeda, Junichi Sano, John Reed, Dave Prowten, Eileen Myers, Steve Morlock, Fred Morlock, John Maher, Sydney Johnston, Eric Johansson, Anna Hillier, Chuck Evans, Harry Drake, Nina Craven, Steve Clougherty, Paul Cicchetti, John Blomquist, and Bruce Berger. Thanks also to Ed Los, Phil Rounseville, Dave Siegrist, Mike Hill and Bruce Berger for the many Thursday evening mirror grinding sessions they provide. Additional thanks go to our Clubhouse Committee members who take Saturday Clubhouse Duty seriously and provide assistance for our weekend observing activities.

On September 13th, a great deal of work was accomplished during both the morning and afternoon sessions. Eric J., Sai V., Eileen M., and Nina C. produced a delicious lunch which lured the most intrepid worker from his post when the bell was rung at 2 pm.

The grass was again mowed and trimmed by John M., assisted by Harry D. and Steve C. The C-14 was again checked out and repairs attempted by Bruce B., Steve M., and Fred M. Grass seed was cast, raked in the fresh soil, and watered by Steve C. around the new observing pads.

During a subsequent work day the True North-South line was spray painted on all observing pads by John B. and Nina C. During the picnic star party, all pads were in use; in addition several telescopes were set up on the lawn.

At another work day a few more granite foundation stones were mortared in place under the old "four-holer" by John B. and John R.

During the 13th session, the trees and bushes that were encroaching on the new observatory site were cut back by Bill T., Nina C., and Junichi S. The debris was later chipped by Brian M. After the electrical conduit was rerouted from the old pipe pier to the clam shell framing, ¾" P.T. plywood was cut, fitted, and fastened to this frame to form the floor/base for the clam shell dome. This was done by Dave P., Paul C., John B., Steve C., assisted by Sydney J., Junichi S., Bill T., Chuck E., Al T., and John R.

Meanwhile Eileen M., Nina C., and Harry D. painted the first coat of white stain to the North barn wall and part of the West wall that was prepared last month. Al T. scraped and vacuumed the South barn wall above the pump room.

On subsequent work days John B., Nina C., and John R. finished repairing, scraping and then painted the first coat of white stain on the West and South barn walls. The barn is now ready for the required second coat of stain at the October work session. The Mosquito Magnet® received the last recharge of octonal and propane for this season by Paul C. It will be secured for the winter during the October work session.

10 pounds of aluminum stock was donated by Eric Johansson.

On October 2nd, during the Thursday evening mirror grinding activity, Al Takeda donated and delivered a full sized professional band saw to the club for the new workshop now under construction in the near barn. Ed Los, Phil Rounseville, Tom Calderwood, George Paquin and John Reed assisted Al in unloading and moving this unit into the barn. Thank you Al for this saw from all club members.

The next work session is scheduled for the October full moon Saturday on October 11 starting at 10am. The painting and observatory construction will continue and your help is needed. The grass is already growing in anticipation of its next cutting. Please try to donate a few hours to these efforts.

We need help in finding another TV set. The clubhouse TV is no longer working and the few older units in the attic did not check out and were discarded during the recent cleanup. So we are asking for help in locating a replacement TV unit and a digital converter box since we only have a "rabbit ear" antennae.

THANK YOU.

~ John Reed, Steve Clougherty and Dave Prowten ~



Clamshell Dome (L-R) Dave Prowten and Paul Cicchetti. Image by Al Takeda

Clubhouse Saturday Schedule

Oct 18	Mike Hill	Gary Jacobson
Oct 25	Steve Clougherty	Brian Maerz
Nov 1	Ed Budreau	Henry Hopkinson
Nov 8	Chuck Evans	Eric Johansson
Nov 15	Paul Cicchetti, John Small – Work Party	

Membership Report . . .

Membership as of 10/3/2008 - 331
Same time last year – 263

Membership renewal payments are now overdue as of September. The renewal process can be completed on-line using Paypal. No Paypal account is required.

<http://www.atmob.org/members/person.php?frid=renewals>

Renewal checks can also be mailed:

ATMoB
c/o Tom McDonagh
48 Mohawk Drive
Acton, MA 01720

Please make every effort to send along your membership dues payment today!

The Amateur Telescope Makers of Boston, Inc. is a 501(c)3 organization. Donations are gladly accepted and are tax deductible to the extent allowed by law. Consider making a tax-deductible contribution to the club when renewing your membership.

Please take the time to seek out and welcome our new club members:

Russell Chaplis	Ken Domino	James Gomes
Kenneth Wright	Kelley Depanian	Robert Holmgren
Cassio dos Santos	Matthew Kamholtz	John DeLuca
MaryJane DeLuca	Richard Sheehan	



New Member Night. (L-R) Bridgette Budhlall, Anthony Rizzolo , Zachary Folcik, Bernie Kosicki, Stephen Moore, Bernie Ross and Harry Drake. Image by Steve Beckwith.

~ Tom McDonagh – Membership Secretary ~

Observing Committee Report . . .

We have a number of upcoming seminars scheduled at the Clubhouse in the next few months. The first is scheduled for October 11th and the topic is “Balancing Your Equatorial Telescope Mount”. The main focus will be on German Equatorial mounts but we will be ready to discuss fork mounts on the Celestron® and Meade® instruments. A second seminar on “Constellations and Related Mythology” is scheduled for October 25th. A session on “Finding Objects Via Charts and “Star-hopping”” will be held on a TBD date in November and will be a perfect follow-up for members who attended the October 25th session.

September was not a good month for our telescopes. The seventeen-inch Dob had been put away “backwards” when it was slid back into its protective shed. The result was the telescope had jumped the rails in which it was mounted. If you are not certain how to operate or secure any of the club’s instruments, then please check with whoever is on duty at the clubhouse for help. In addition, the C-14 is presently not available for use as it is not working. The mount had been left powered-up and had driven itself into the rafters of the (closed) observatory roof. The Observing and Clubhouse Committees will be taking steps to insure this doesn’t happen again. However, all members using the C-14 should refer to the procedures in the clubhouse on starting up the instrument AND shutting it down if they wish to continue using this instrument. These procedures have also been covered via the required training sessions.

~ *Steve Beckwith, John Maher and Mike Mattei* ~

AstroAssembly Report, Oct 4 . . .

Once again AstroAssembly had excellent talks and good things to buy.

Educator Gerry Dyck showed the solar system presentation he gives to elementary school children, offering ideas of what to say and how to present to youngsters. “Three Views of the Planets” shows how planets look naked eye, then through telescopes small and large, and finally as taken from cameras on spacecraft.

Mars glaciologist Dr. James Dickson from Brown University talked about glaciers that existed on Mars. He showed photos taken of gullies, slope streaks, spiders, dust devils, and other changing features.

Allen Hall and Dick Parker talked about how they designed and built their twin 16-inch Cassegrain telescopes, describing components, problems, machining and optical techniques. One scope was there to admire. The talk was amazing to hear even for the non-technical listener. Did you see the two telescopes at Stellafane this year? They won the top prizes in all categories.

Dr. Savvas Koushiappas of Brown University gave a wonderful overview of cosmology, talking about key contributors to this research area in the past and now.

After the buffet dinner held at the North Scituate Community Center, Prof. Alan Marscher of Boston University talked about jets from black holes in active galactic nuclei. After listening to him talk about the violence going on in and around these huge objects, Dr. Marscher brought us safely back to Earth by playing his guitar and singing two of his original songs. He was our guest speaker at the June ATMob meeting.

AstroAssembly is an annual convention held in North Scituate, RI. There were about 20 ATMob members present. Remember, if you would like to carpool to any of these nearby conventions, send out an email to atmob-discuss or notify the club president, who will pass along the information to those who regularly attend these events.

~ *Eileen Myers* ~

A Picnic Thank You to All . . .

The day of the September 20th ATMob picnic was a beautiful one, cool and clear. Picnic events included horseshoe toss, optical table activities, solar activities, puzzles, solar system in a pocket activity, playing with astronomy toys, a walk up the hill and more. And, of course, eating and talking! The clear skies at night brought out so many telescopes that much of the grass as well as every pad in the observing field was in use. Groups used the club’s scopes too. The last observer left at 2:45 AM.

Thank you to the setup team of Al Takeda, David Prowten, Sai Vallabha, Nina Craven, Sai Vallabha, John Blomquist, Art Swedlow, Harry Drake, John Maher and everyone else who lent a hand. Thank you to Al and Dave for setting up and taking down the dining fly. Thank you Nina Craven and John Reed for doing all that shopping. Thank you to chefs Eric Johannson, Sai Vallabha, Nina Craven, and Art Swedlow. Thank you to the cleanup crew of Sai Vallabha, Al Takeda, Nina Craven, John Maher and everyone who lent a hand. Thank you to everyone who lent a hand when it was needed all during the picnic, rearranging food, cleaning up, greeting new arrivals, removing trash, arranging chairs and tables and so much more. Thank you to everyone who brought all the yummy food. Thank you to Harry Drake for posting photos so quickly on the club’s website. Thank you Sai for your photos too, and for the bright, colorful flowers. Thank you to those who cut the lawn. Everyone’s help made the day so pleasant and everyone had a good time. What a wonderful group of people! Congratulations to everyone for making the event a success!

~ *Eileen Myers* ~

**November Star Fields DEADLINE
Friday, October 31st**

Email articles to Al Takeda at

secretary@atmob.org

POSTMASTER NOTE: First Class Postage Mailed Oct 7th, 2008

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

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Mike Mattei (978) 264-0017
John Maher (978) 568-1253

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 listen to WBZ (1030 AM)

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.

- Oct 14 Full Moon
- Oct 20 Orionid Meteors peak
- Oct 21 Last Quarter Moon
- Oct 22 Mercury at greatest western elongation 18 deg. (morning)
- Oct 28 New Moon
- Nov 2 Daylight Saving Time ends, Taurid meteors this week
- Nov 5 First Quarter Moon
- Nov 13 Full Moon