



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. 5 May 2016

This Month's Meeting . . .

Thursday, May 12th, 2016 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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

Minor Planet Center Operations



Earth and an Asteroid. NASA/JPL-Caltech/UCAL/MPS/DLR/IDA and
NASA's Earth Observatory

Our guest speaker this month is Michael Rudenko, an IT Specialist at the Minor Planet Center (MPC) in Cambridge, MA since 2009. He has created the MPC's public facing relational database, web interface and related pages. He is presently engaged in modernizing the MPC observation processing, orbit computation and related operations. His talk will describe some of the Minor Planet Center's operations and services.

Rudenko received an SB (Bachelor of Science) in Mathematics from MIT in 1977, and has been engaged in computer programming ever since. During the 1980s, as an amateur astronomer, he undertook a visual comet hunting project and discovered three comets with the aid of a 6-inch refractor.

The Minor Planet Center 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.

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 . . .

As some of you know, our website is getting old and in need of an upgrade. A Website Committee consisting of Bernie Volz, Bernie Kosicki, Tom McDonagh, Ricky Leiserson, Maria Batista, Dave Stanly, and myself met at the Clubhouse on March 28th to discuss the situation. It was agreed that the club look into a commercial web provider, rather than have a website created by ATMoB members. We looked at a prioritized list of needs compiled by former ATMoB President Neil Fleming at a Board meeting last year and agreed to research the web providers that could best meet these criteria. At a meeting on April 26, a final selection will be made, and recommendations will be forwarded to the Board for their consideration.

Speaking of meetings, can't make the monthly meeting because of illness, family or job obligation, or you live too far from Cambridge? You may be able to "attend" future meetings via the internet. A suggestion has been made that we record our meetings and post them on the internet, perhaps through YouTube. There are details that need to be ironed out, and we'll briefly discuss them at the April 26th Website Committee meeting.

Congratulations to Steve Clougherty (Chairman), Tom McDonagh, and Peter Bealo on their election by the membership as this year's Nominating Committee. They'll be looking for candidates to fill the positions of Vice President and Membership Secretary. If you're interested in either position, please contact any one of them. We'll keep you posted on the Nominating Committee's progress.

Steve Clougherty, Joe Henry, and others have proposed the idea of setting up a program to get more "ATMoBers" involved in observing, perhaps by awarding certificates of achievement. I have to admit I wasn't totally sold on the idea, as I had been vainly trying for several years to establish such a program. At an ATMoB meeting in 2011, Bruce Berger, Neil Fleming, and I announced an observing awards program that was similar to the one run by the Astronomical League. We began with the Messier Marathon, and Bruce Berger and his wife created a beautiful award certificate. To my chagrin, only two of us (myself being one) participated. We put the rest of the program (awards for double stars, and various deep sky categories) on hold because the Messier Marathon program had flopped.

During the Observing Committee report at an ATMoB meeting last year, I brought up the idea of tackling the Finest Deep Sky

Objects list put out by James Mullaney and Wallace McCall and published in *Sky and Telescope* back in the mid-1960s. That, too, went nowhere.

OK, now for some positives. ATMoB is a GREAT organization with a FANTASTIC membership, and I'm proud to be its current President. It's encouraging to see that some members want to revisit the idea of programs to stimulate involvement observing. This is something the Observing Committee will be looking into in the very near future.

Final note - I was recently asked if ATMoB could hold special observing sessions for members just getting into backyard astronomers or requiring a refresher course to get back into things. Each session, run seasonally, would include identification of prominent stars and constellations, followed by a guided tour of currently-visible solar system and deep sky targets. The spring session will be held at the Clubhouse on Saturday, May 7, beginning at 7:30 pm. More information is listed on the Events section of our website.

Clear Skies!

~ Glenn Chaple – President ~

April Meeting Minutes . . .



Steve Nadis *

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

Voting was held to formally elect members of the Nominating Committee. Glenn Chaple announced the voting results: Steve Clougherty (chairperson), Tom McDonagh, and Peter Bealo were elected to the Committee. We currently have 2 open Executive Board positions: Vice-President and Membership Secretary.

Snacks for the April meeting was provided by Glenn Chaple

Julie Kaufmann gave a photo presentation about her solar eclipse trip to Indonesia. The trip was a cruise sponsored by *Sky*

and *Telescope Magazine*. Julie showed the membership beautiful scenery from Bali, and highlights of the Solar eclipse.

- Phil Levine gave the Secretary's report.
- Eileen Myers gave the Treasurer's report.
- Glenn Chaple gave the Membership report for Tom McDonagh who was unable to attend.
- Glenn gave the Observing report:

The March 10th Aldebaran occultation was viewed by a number of Club members. <http://earthsky.org/tonight/waxing-moon-near-the-bright-star-aldebaran>

A Messier Marathon/Double Star event took place at the Westford Clubhouse the nights of April 11, 12. <http://messier.seds.org/xtra/marathon/marathon.html>
<http://members.shaw.ca/r/mcnish/darksky/messierplanner.htm>

April 18th: Mercury will be at its greatest eastern elongation in the evening sky. <http://freestarcharts.com/19-news-and-current-events/505-mercury-reaches-greatest-elongation-east-on-april-18-2016-best-chance-to-see-the-planet-in-the-evening-sky-from-northern-locations-this-year>

April 25: Antares, Mars, Saturn, and the Moon, will be in close alignment. <http://earthsky.org/tonight/moon-scorpius-rise-as-orion-sets>

On Monday, May 9th, one of the major events of this year will take place. Mercury will transit the Sun. <http://eclipsewise.com/oh/tm2016.html>

The Sue French Fan Club observing Object of the Month for April is the binary star Algeiba (gamma Leonis) <http://frostydrew.org/publications.dc/show/entry-728/>

The Las Vegas Astronomical Society (LVAS) Observing Challenge of the Month is NGC 3077, a peculiar irregular galaxy <http://www.kopernik.org/images/archive/n3077.htm>
<http://messier.seds.org/xtra/ngc/n3077.html>

The Clubhouse report was not given. For the report, check this month's Star Fields. The next Clubhouse Work Party will be held on Saturday, April 23rd.

- Announcements:
Glenn Chaple informed the membership of a new series of observing sessions to be held at the Westford Clubhouse. The "Beginners Sky Tours" will be geared toward familiarizing members with the night sky. The first session will be held on Thursday evening, May 5th, starting at 7:30 pm. The following Friday and Saturday nights are contingency rain dates.

Bruce Berger forwarded information indicating that Boston Globe subscribers can take advantage of a free voucher for advertising (normally \$75). Glenn encouraged members who

are Globe subscribers, to take advantage of this opportunity to provide ATMoB with free publicity.

Star Party coordinator Virginia Renehan informed the Club about an upcoming Star Party, to be held at Waitt's Mountain in Malden, MA on April 30th. This [event](#) is sponsored by M.I.T. Haystack, the Malden Cultural Council and [Malden Reads \(Malden Reads is a community reading program in Malden, MA\)](#). Glenn encouraged the membership to sign up for this public outreach event via the ATMoB website.

John Sheff updated the membership about the upcoming Cambridge Science Festival's Sidewalk Astronomy Event, to be held on April 15th in Harvard Square, and asked for Club members to volunteer.

Kelly Beatty mentioned that the organization "Save the Harbor" has a proposal to sponsor star parties that will be held at various local beaches. Grant money is involved and members participating could receive compensation, perhaps \$100 each, for this public outreach event.

<http://www.savetheharbor.org/Content/currentsplash.pdf>

- Old Business: The Club Website Committee met to consider redesign of the ATMoB website. The next committee meeting will be held April 26.
- New Business: Interest was expressed to possibly record ATMoB monthly meetings, and make the recordings available on the new Club website.

Kelly Beatty informed the membership that the Dexter-Southfield School will not be holding an Astronomy Day event this year. A suggestion was made about the possibility of organizing an ATMoB/CfA Astronomy Day.

The membership was informed that the Cambridge Science Festival is sponsoring an Astronomy Day event on Saturday, April 23rd at the Harvard CfA. Solar observing will be held, weather permitting.

Glenn Chaple introduced Steve Nadis, co-author of, [*From the Great Wall to the Great Collider: China and the Quest to Uncover the Inner Workings of the Universe*](#). Steve gave an overview and historical summary of sub-atomic particle discoveries, and likened particle accelerators to experimental microscopes. Pioneers influential in sub-atomic particle theory and discoveries include Democritus, John Dalton, J.J. Thompson, Ernest Rutherford and Niels Bohr.

Democritus is credited with postulating the existence of atoms as the building blocks of matter.

http://www.hyperhistory.com/online_n2/people_n2/science_n2/atomic_theory.html

Much later John Dalton refined the concept of atoms, providing a working basis for modern chemistry.

<http://www.iun.edu/~cpanhd/C101webnotes/composition/dalton.html>

The basis for modern electronics can be attributed to the work of J.J. Thompson, who made ground breaking advances with the discovery of the electron.

http://www-outreach.phy.cam.ac.uk/camphy/electron/electron_exp.htm
<http://www.amazon.com/J-J-Thompson-Discovery-Electron-Davis/dp/0748406964>

Ernest Rutherford advanced the understanding of sub-atomic particles with his research which led to the discovery of the atomic nucleus and the proton.

Niels Bohr contribution is the basis for our modern concept of the quantum cloud model of the atom.

<http://www.britannica.com/science/subatomic-particle>

Steve Nadis continued his presentation with a historical summary of cyclotrons and accelerator research into sub-atomic particles. The basis for building the proposed "Great Collider" in China is to have a more powerful device that may help to create more sub-atomic particles. Clues derived from those collisions could possibly refine the Standard Model of particle physics, and perhaps unravel the mystery of Dark Matter.

Plans for the Great Collider, to be built near Qinhuangdao (170 miles east of Beijing), will not be finalized until later this year. Current plans are for a collider that is 100 kilometers in circumference, twice as large and with energy levels seven times greater than the Large Hadron Collider (LHC). Construction will not begin until 2020.

<http://phys.org/news/2015-10-china-super-super-collider.html>

Check out the following links for detailed information on various research facilities and discoveries at places such as the Stanford Linear Accelerator, the Tevatron and the super collider at CERN.

http://hep.uchicago.edu/cdf/frisch/p363/InventionOfCyclotron_shiraishi.pdf

<http://www.slac.stanford.edu/gen/grad/GradHandbook/slac.html>

<https://www6.slac.stanford.edu/about/slac-history.aspx>

<http://fnal.gov/pub/tevatron/experiments/index.html>

http://www.phys.ufl.edu/~korytov/phz5354/note_17_neutrino.pdf

<http://home.cern/about/physics/standard-model>

<http://physics.info/standard/>

<http://www.physics.umd.edu/hep/TheStandardModel.pdf>

<http://home.cern/about/physics/supersymmetry>

http://hitoshi.berkeley.edu/public_html/susy/susy.html

Glenn Chaple adjourned the meeting at 10:30 pm.

~ Phil Levine - Secretary ~

Clubhouse Report . . .



Solar Observing at the Clubhouse *

April 2016 Clubhouse Report

There were 27 volunteers who came out to help us at the April 23rd Clubhouse work party. The weather cleared during the afternoon and solar viewing took place thanks to Bruce Berger and Vladislav Mlch.

Discussions were held for the basement drainage project and a plan was developed by John Reed, Paul C. and Vladislav Mlch. A drainage trench will need to be dug and PVC pipe laid in a pattern which will expedite water run off in the basement. Volunteers will be needed over the next several work sessions to accomplish this task.

Bruce Berger and Dave Prowten outlined a plan to install a catwalk around the ATMoB Research and Imaging Observatory this season. A list of materials and a budget will be drawn up within the next two months. Volunteers will be needed in the construction of this structure.

Volunteers did a final Spring clean up around the property and any remaining branches and yard debris was hauled away. Plans are currently underway to hire a contractor to treat the property for ticks and mosquitoes this Spring and Summer. A request for funding is currently pending with the exec. board.

Two members brought their telescopes to the work session and their mirrors were cleaned and the scopes were collimated. The 8-inch mirror from our Orion Dobsonian (Dob) was also cleaned and collimated. We thank Phil Rounseville for taking the lead on this project.

The 17-inch Dob was also tuned up by a group of volunteers.

Lunch was served by our reliable lunch crew and volunteers, many of whom stayed late and observed into the evening.

Our next work party will be held on Saturday, May 21st.

Thanks to the following members and friends of the ATMoB for helping out during the month of April: Susan Adam, Bruce Berger, Suzanna Black, John Blomquist, Barbara Bosworth, Paul

Cicchetti, Steve Clougherty, Paul Courtemanche, Nina Craven, Jim and Charles Gettys, Kristy Glidden, Anna Hillier, Eric Johansson, Dick Koolish, Penny Lucinian, John Maher, Mike Mattei, Amber McDonald, Vladislav Mlch, Dave Prowten, John Reed, Phil Rounseville, John Stodieck, Al Takeda, Sai Vallabha and Dan Winchell.

~ *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		
May 14	Steve Clougherty	Karl Dean
May 21	WORK PARTY # 5 Eric Johansson **	
May 28	Paul Cicchetti	Jim Gettys
June 4	Tom McDonagh	Tom Wolf
June 11	John Reed	Sai Vallabha
June 18	WORK PARTY # 6 Dave Prowten **	

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

Membership Report . . .

Membership count as of April 24, 2016 is at 298 individuals. The longest active member on record is Paul Valleli who joined ATMoB in 1955.

Please welcome our newest and returning members: Dennis Gudzevich, Mary Azzarto Ciampa, Stella Kafka and Thomas McLaughlin.

The club's fiscal year begins on June 1st. The membership renewal period begins at this time. Please mark your calendar and look out for renewal notices. Members who joined in 2016 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 openings, events and interesting astronomy related discussions. Contact me 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. This is a simple way to make your donation go twice as far.

~ Tom McDonagh – Membership Secretary ~

Sky Object of the Month . . .

May 2016

Courtesy LVAS Observer's Challenge***

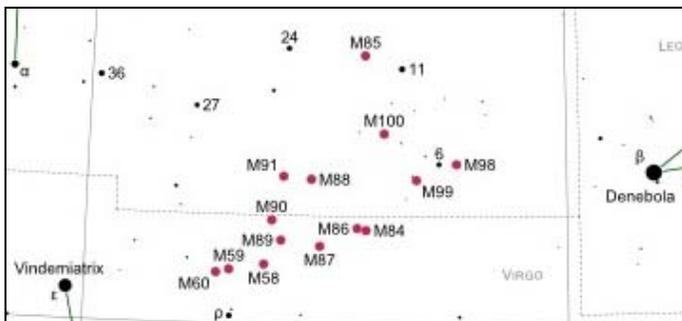
M100–Galaxy in Coma Berenices

(Magnitude – 9.5, Dimensions – 7' X 6')



Image by Mario Motta M.D.

M100 was discovered, along with M98 and M99, by Pierre Mechain on March 15, 1781 and catalogued by Messier the following month. Though relatively bright in magnitude, M100 is low in surface brightness. A face-on spiral like the notoriously difficult M33 in Triangulum and M74 in Pisces, M100 is nevertheless visible in small-aperture scopes as a ghostly averted vision object. A member of the Coma/Virgo Galaxy Cluster, M100 is about 55 million light years away. In April of 1979, long time Observer's Challenge contributor Gus Johnson visually discovered a 12th magnitude Supernova in M100. Johnson was given credit for the discovery of 1979C.



freestarcharts.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 ~

Sidewalk Astronomy in Harvard Square . . .



Dan Winchell and Jack Richardson with their scopes *

The Sidewalk Astronomy event in Harvard Square on April 15th was a huge success. We weren't counting the visitors, but estimates of the audience size range from 250 – 350.

We had four telescopes and five astronomers, so we had long lines of enthusiastic visitors awaiting their turn to look at the Moon and Jupiter.

This was a part of the annual Cambridge Science Festival, and the program provided us with 5 volunteers who were very helpful in crowd control, engaging the visitors, distributing literature, and carrying our equipment. And we'd like to thank the City of Cambridge for providing us with adequate reserved parking spaces and for turning off street lamps in the neighborhood of our event. Hopefully we can build on our success next year!

A big thank you to ATMob members Julie Kaufmann, Jack Richardson, John Sheff, Al Takeda and Dan Winchell.

~ Submitted by John Sheff ~

Editor: * Photos by Al Takeda unless otherwise noted.

June Star Fields DEADLINE
Sunday, May 22nd

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed May 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

PRESIDENT: Glenn Chaple (978) 597-8465

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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.

May 6 New Moon

May 9 Mercury Transit across the Sun (07:12:19 - 14:24:26 EDT)

May 13 First Quarter Moon (Moonset at midnight)

May 21 Full Moon

May 29 Last Quarter Moon (Moonrise at midnight)

June 3 Saturn at Opposition, Mercury 0.7 deg. North of Moon

June 4 New Moon