



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. 25, No. 6 June 2013

This Month's Meeting...

Thursday, June 13th, 2013 at 8:00 PM
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

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



Haystack Observatory Complex. Credit: Haystack Observatory.

Haystack, Historically Speaking

This month's speaker will be Jeffrey Dominick, Site Manager of the Lincoln Space Surveillance Complex in Westford, MA - what we simply refer to as Haystack Observatory. There is a lot going on up there and has been for many years. Some of us know a great deal about what kind of facilities exist "up the hill" from our clubhouse in Westford. Some of us might not even know there is anything up there but our clubhouse. This will be your chance to discover what very interesting things are taking place in our midst and learn the history behind them. The talk will briefly summarize some of the milestones and highlights of the Millstone Hill Field Site, as it was originally called, and will span the time period of the mid-1950s to the present. A number of different sensors and missions will also be discussed and an open question and answer forum will follow.

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...

How many of you remember the 1995 movie Apollo 13? I was watching it (again) the other night and I love Gene Kranz's famous quote soon after the explosion when they were trying, in the midst of sudden chaos, to figure out what all the bad telemetry was telling them and he said, "Let's look at this thing from a... um, from a standpoint of status. What do we got on the spacecraft that's good?"

Given that it's June and the end of our current fiscal year, I decided to write about the status of our equipment up at the clubhouse. "What do we got up there that's good?" Well - we have a lot, much of it having come on-line or seen great strides in improvement over the last year.

The biggest change has been the completion of our newest observatory (ARIO) which houses the computer controlled C14 equipped telescope with a host of CCD cameras, piggy back telescopes for wide field imaging and the capability to run the scope from inside the clubhouse on those cold frosty winter nights. A lot of work has gone into this, most recently synchronizing the dome to follow the pointing of the scope. The status of this is that it is ready for use but we are still having some issues with the dome position accuracy. Thanks go to Bruce Berger for all his tireless work on this project.

The other big change was the installation of a Meade LX200GPS telescope into the clamshell observatory. This was donated to us by late member Scott Chizzo and has transformed this observatory from one that was very touchy to use to one that works flawlessly and is easy to learn and powerful in capability either as a manual scope or with go-to capabilities. Thanks go to John Maher for taking this telescope under his wing, making sure it's in working order and running training sessions for interested members.

The Ed Knight observatory now has the 6" Schupmann installed in it again on a Losmandy G-11 equatorial mount that is very steady and is easy to use. The views through this telescope are wonderful due to its inherent color free design. Thanks go to John Blomquist for taking this telescope to its current state including the addition of finders, both optical and laser based, which make pointing this scope around the sky so easy.

The 17" Dob is in great shape too. A lot of work has gone into the fine details of this telescope to make it an even better scope than it already was. The mirror was recoated and the mirror cell rebuilt to make collimation easier and more stable. A dew heater system was added to keep the optics dew free and power has been added to easily keep these running throughout an observing session. In addition the hutch that it is housed in has been refurbished to better withstand the elements. Thanks go to Steve Clougherty for heading up the work on this over the past year.

We also have the 20" in the Ed Knight observatory. It is in working order too with better bearings to facilitate easier

movement about the sky. Thanks to Dave Prowten for heading this up and making this a usable instrument now.

And last but not least we have a good deal of telescopes in our new downstairs telescope room that can be taken out to the field for a nights observing or in some cases checked out and taken home for a while so you can get to know how to use a telescope on your own terms in your own back yard. They are there for you – our members, so take advantage of this opportunity if you like.

I hope you all have a great summer and have clear skies and pleasant weather wherever you may be. There will be the usual member presentation meeting next month so let me know if you have a short presentation about your latest project that you'd like to share. It's always fun to see what others have been up to.

~ Mike Hill – President ~

May Meeting Minutes . . .



(L-R) Ed Los, Dr. Jonathan Grindlay and Bob Simcoe. Image by Al Takeda

Minutes of ATMoB meeting held May 9, 2013.

Meeting held in Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics. Mike Hill, President, called the meeting to order at 8:00 PM.

- The Secretary's Report of the April meeting was given by Sidney Johnston.
- Mike Hill gave the treasurer's report, which had been prepared by Nanette Benoit.
- Tom McDonagh gave the Membership Committee Report
- Glenn Chaple gave the Observing Committee Report.
- Steve Clougherty gave the Clubhouse Report
- Bernie Kosicki gave the Nominating Committee's report including the slate of officers for 2013-2014.
- Old Business: None

- New Business: Dick Koolish gave a presentation on a Scientific Instrument display to be held on June 21, at the Harvard Museum in honor of the Summer Solstice.

Mike Hill mentioned that the Lowell Observatory asked for a donation to help restore their 24-inch Clark Refractor, and indicated that the Board had approved the donation by an e-mail vote.

President Mike Hill introduced Professor Jonathan E. Grindlay, Ph.D. as the invited speaker. Professor Grindlay is the Robert Treat Paine Professor of Practical Astronomy at Harvard. Professor Grindlay's research interests include compact objects and binaries in globular clusters and the origin and evolution of compact X-ray binaries; accretion onto white dwarfs; neutron stars and black holes; and development of a balloon-borne hard X-ray-imaging telescope and future space missions for hard X-ray observations of X-ray binaries and quasars.

The talk described the "Digital Access to a Sky Century @ Harvard" (DASCH) program. The DASCH program is to digitize the Harvard collection of photographic glass plates taken of the sky for a century, from about 1885 through 1992. There are about 500,000 glass plates in the collection. The plates were taken with approximately 10 principal telescopes, and with about 40 telescopes in total. The telescopes were placed around the Earth and so views of the entire sky are recorded. The program of photographing the sky was started by Charles Edward Pickering who was director of the Harvard College Observatory from 1877 - 1919.

The DASCH project was started over ten years ago when Professor Grindlay encouraged Alison Doane, the new Curator of the Harvard Astronomical Plate Collection, to look into the feasibility of digitizing the collection. In May 2003, Alison and Dr. Martha Hazen, former Curator, gave a talk to our club about the project, which resulted in several ATMOB members volunteering to help. Bob Simcoe has been responsible for the development of the hardware, a very sophisticated high speed digitizing machine. Ed Los has developed and coded most of the software.

Professor Grindlay emphasized that the help of the ATMOB as volunteers, especially Bob Simcoe and Ed Los, made the digitization of the plates possible. Numerous other ATMOB members have volunteered to work on the plate scanning project.

The DASCH program is described at the link: <http://dasch.rc.fas.harvard.edu/index.php>

Most of the plates are 8 inches x 10 inches, however; there are numerous plates of different sizes. Plate scales of the plates are between about 60 – 600 arc sec / millimeter. The scanner permits star positions on the plates to be determined to within 0.1 micron.

The plate collection contains plates used by Annie Jump Cannon and Henrietta Swan Leavitt in the Cepheid Variable period luminosity discovery, establishment of the OBAFGKM spectra classification, and many other astronomical discoveries.

The equipment can digitize approximately 400 plates per day, and at that rate the project could be completed in about 3 years.

Digitization of the plates permits discoveries of Time Domain Astrophysics processes which occur over years, decades, and the century during which the plates were exposed. Light curves of periodicities of years and decades have been measured as the plates have been digitized.

Calibration of the digitized plates makes use of various sky surveys. Particularly, the American Association of Variable Star Observers (AAVSO) Photometric All-Sky Survey (APASS) has improved DASCH photometric calibration.

New discoveries made with the approximately 45,000 plates which have been scanned include variability of K giant stars not previously known to be variable, signs of accretion disks and other changes in areas where black holes are known in a search for century long astrophysical changes, the study of quasars, and many other astrophysical puzzles which can be studied with the century of data. Movement of interstellar dust, nova and white dwarfs, luminous accretion disks of black holes, binary stars orbits, are a few of the astrophysical processes available for study with data from the digitized plates.

Professor Grindlay conducted a tour of the plate scanning room and demonstrated a scan operation for members of the ATMob after his talk.

The meeting was adjourned at 9:30 PM

~ *Sidney Johnston, Secretary* ~

Executive Board Nominations . . .

The 2013 Nominating Committee has proposed a slate of nominations to be voted on at the Annual Meeting in June. The nominees are:

President: Mike Hill
Vice President: Neil Fleming
Secretary: Sidney Johnston
Treasurer: Nanette Benoit
Membership Secretary: Tom McDonagh
Member at Large: Glenn Chaple
Member at Large: Eileen Myers
Member at Large: Nina Craven

Executive Board Meeting . . .

An Executive Board meeting will be held on Tuesday, June 25th at 7:30 p.m. at the ATMob Clubhouse. The meeting is open to the membership.

Clubhouse Report . . .

MAY 2013



Paul Cicchetti checks out a pair of BIG bins. Photo by Al Takeda

Thursday night mirror grinding, Friday night member Astronomy classes, and Saturday night observing was supplemented by almost two weeks of good observing weather during mid-May; telescopes were set up on the observing field most clear nights. This month's full moon work party, however, started at 10am under cold rain and drizzle on Saturday May 25. A full day of work was donated by 17 members; activities were:

- The worm gear was adjusted on the Schupmann G-11 mount by J.B., A.T., and C.S.
- The deteriorated sections of the doors of the wooden shed were repaired with pressure treated lumber, fasteners and lock replaced. The animal occupying the hole under the shed will be evicted shortly; rain prevented relocating its pile of dirt blocking the walkway next to the house. Accomplished by D.P., S.C., E.M., and P.R.
- The locks on the 17" hutch and Clamshell dome have been re-keyed for the front door key. Now "A" members on duty can easily check all locks for security during their walk around inspection. Accomplished by D.P., J.M., J.R., and A.T.
- The grinding and polishing room sinks were cleared of loose debris, scrubbed with Brillo pads, scraped with tools and blades; the polishing sink's cheese cloth screen was removed, surfaces cleaned, and replaced. Remember that the opticians ask that the floor be wet mopped periodically to remove pieces of pitch and dirt rather than using the vacuum sweeper; the floor will be cleaned next party. Accomplished by P.R. and J.R.
- Telescope room was cleaned, scopes covered, and room tidied by S.C., A.T., and J.M.
- The bathroom heater control was tested and found to need replacement. As soon as purchased the new unit will be installed and tested. Work in progress by J.S.; breakers are clamped off in grinding room.

- Storm windows stored in barn attic were measured against house storm windows needed; those units not meeting exact needs were moved outside to barn rear walkway. Work in progress; after dismantling the glass and aluminum will be recycled separately. Accomplished by P.C., B.T., and J.R.
- A new to us answering machine donated and installed by Al Takeda now should intercept incoming calls after 4 rings. Al also donated an LED flashlight and installed a hook for it at the basement light switch to allow regular oil tank inspection. The oil level was just short of ¼ tank (read from the bottom of the yellow oil float in the tube on top of the tank). Thanks Al for your donations.
- A short budget review session was held late in the day allowing all members present to review and provide input to this annual process. It now will be sent to the president for executive board action. Chaired by S.C., D.P., and J.R.

The lunch of burgers, various dogs, salad & dressings, condiments & chips, corn on the cob, followed by cookies and watermelon provided by S.V., E.J., E.M., C.R., A.S. J.R. was eagerly devoured by a hungry crew Work listed above continued until twilight and more drizzle arrived. An evening session of DVDs showing the contributions of Gene Shoemaker, geologist extraordinaire, throughout his lifetime including their (Shoemaker-Levy-9) comet's impact with Jupiter was presented by P.C.

Thank you Sai Vallabha, Bill Toomey, Al Takeda, Art Swedlow, Courtenay Smith, John Small, Phil Rounseville, John Reed, Cheryl Raynor, Dave Prowten, Eileen Myers, Mike Mattei, John Maher, Steve Clougherty, Paul Cicchetti, John Blomquist, Bruce Berger.

Join us for our next work party on Saturday, June 22.

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

Clubhouse Saturday Schedule

June 15	Dave Prowten	Brian Leacu
June 22	Brian Leacu + Phil Rounseville WORKPARTY #6	
June 29	George Paquin	John Small
July 6	Art Swedlow*	Sai Vallabha*
July 13	Bill Robinson	Rich Burrier
July 20	John Maher + Glenn Meurer WORKPARTY #7	
July 27	Henry Hopkinson	Eileen Myers

Membership Report . . .

Membership count as of 05/30/2013 is at 307 individuals
 Same time last year: 304

Having problems with Sky & Telescope or Astronomy Magazine subscriptions? Please feel free to contact me and I will be happy to help you.

A number of members have experienced problems with Mailing List subscription. If you believe you have experienced an issue with this function, please contact me via email at tom_mcdonagh@yahoo.com. Please don't forget to update your personal information such as email and mailing addresses. Send me a note or log into the ATMoB website to edit your personal information today.

We had a huge month for new members and they are the lifeblood of the organization. I ask that the experienced members of the club reach out and welcome our newest and returning members.

John Harrington	Courtenay Smith	Jack Whipple
Serge Lafontaine	Ralph Caisse	Sameer Bharadwaj
Michael Anuta	Michael Dumais	Rex Gallagher
David Ronnow	Dan Courtney	David McCurdy
Karen Paik		

The Amateur Telescope Makers of Boston, Inc. is an IRS designated 501(c)3 public charity organization. Donations are gladly accepted and are tax deductible to the extent allowed by law.

~ *Tom McDonagh – Membership Secretary* ~

Sky Object of the Month . . .

June 2013 Nu (ν) Scorpii – A “Double-Double” Challenge in Scorpius

I first met nu (ν) Scorpii in the summer of 1971. Using a 3-inch f/10 reflector and magnifying power of 60X, I saw the same wide (41 arc-second) magnitude 4.2 and 6.6 double star that the German astronomer Christian Mayer had discovered nearly two centuries earlier. At the time, I had no idea there was more to be seen.

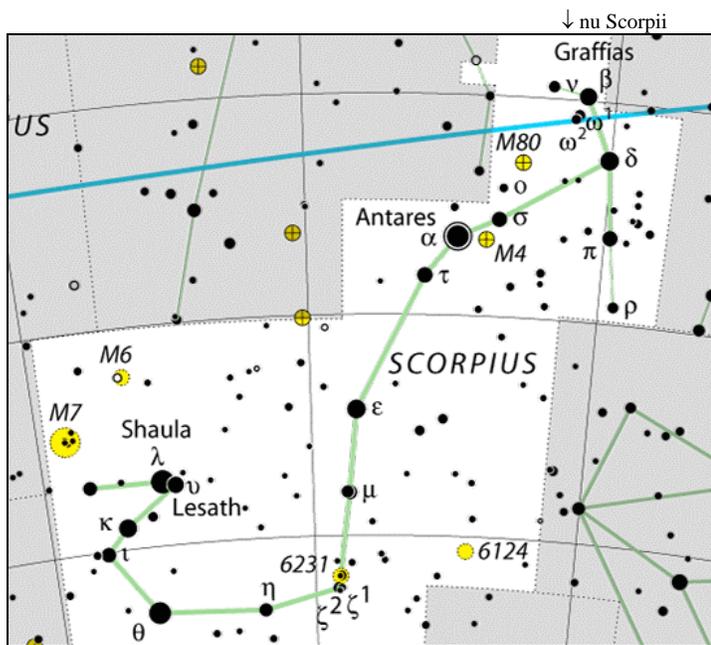
Neither did the American astronomer Ormsby M. Mitchel (who would later become a decorated Civil War general) when, in 1846, he eyed nu Scorpii with the 11-inch refractor at the Cincinnati Observatory. He was able to split the fainter star into its magnitude 6.6 and 7.2 components, which were 1.1 arc-seconds apart at the time. In 1873, the eagle-eyed double star observer S. W. Burnham outdid Mitchel by detecting the duplicity of the brighter star when its magnitude 4.4 and 5.3 components were a mere 0.3 arc-seconds apart. This was an

amazing visual accomplishment, as Burnham made the discovery using a 6-inch refractor!

In the ensuing decades, these two pairs (designated Mitchel 2 and Burnham 120) widened and, by the early 1900s, were within reach of medium aperture scopes. In 1905, Agnes Clerke wrote that nu Scorpii is “perhaps the most beautiful quadruple group in the heavens.” Other astronomers likened it to the better-known “Double-Double” Epsilon (ϵ) Lyrae.

Today, the two binary stars that comprise the nu Scorpii system are wider than ever – 2.4 arc-seconds for Mitchel 2 and 1.3 arc-seconds for Burnham 120. Splitting them will still require planning and patience. Because of its southerly declination, you’ll have to wait until nu Scorpii is as high above the horizon as possible (around 10pm on a mid-June evening). Optimum seeing conditions are a must and you’ll need an optically sound telescope of at least 6-inch aperture and a 200X-plus magnifying power.

Was Agnes Clerke’s assessment of nu Scorpii accurate? Does it actually outrank the celebrated epsilon Lyrae in visual splendor? You won’t know unless you give each a telescopic examination.



Your comments on this column are welcome. E-mail me at gchapple@hotmail.com.

~ Glenn Chaple – Member at Large ~

Astronomy Day Delights 2,500 Visitors! . . .



ATMoB telescopes set up at the Clay Center. Photo by Al T.

The ninth-annual Astronomy Day held on Saturday, May 18, was the biggest and best ever, with over 2,500 attendees, and 120 volunteers and exhibitors. The Clay Center thanks all members of ATMoB who showed up in force for the event. The crowd was treated to a beautiful day that allowed for solar viewing during the day and visibility of Saturn and the Moon at night.



Nina Craven (Right) observes the Moon. Photo by Al T.

The children flew kites, tried on astronaut suits, participated in arts and crafts, and rode Segways, while all ages were delighted by four “science laser light shows,” six sold-out Planetarium showings, the Galileo impersonator, and three different kinds of rocketry. A major attraction was a Tesla coil, a transformer circuit that crackles and emits vivid purple sparks. “Sue’s Cosmic Choir,” a Class 5 singing group entertained the audience with songs about space, and our own food services team manned the food stand, which was busy throughout the event.

See all the action!

<https://www.dexter-southfield.org/podium/default.aspx?t=52562&a=266224>



(L-R) Alan Sliski and Dick Koolish . Photo by Al T

Other highlights included a plasma speaker that plays music, a worldwide telescope kit that allows “virtual travel” through space, science posters from our fourth-graders, the use of over a dozen varied telescopes provided by the Amateur Telescope Makers of Boston (ATMoB), presentations of current events in space, and a powerful image of the moon created by Dexter student Richard Ng.



Brian Leacu (Center) answering questions about astronomy. Photo by Al T.

The Astronomy Day team would like to thank the ATMoB for their participation.



Bill Robinson observing the Sun with a mylar solar filter. Photo by Al T.

~ Submitted by Robert Phinney, Clay Center Director ~

A New Telescope . . .

Just recently one of our younger members, Hannah Falewicz, finished a telescope that she built as a school project. She came to us with a desire to build a telescope, but had no idea what exactly to build. Bruce Berger helped to get her started with ideas on what direction to take and guided her to the decision not to make the mirror. He dug up an old 4¼" aluminized mirror from our glass room and gave this to her as a starting point. She decided to make a pipe fitting mount based on the designs from the old Edmund Scientific telescope making books and with that she was off. I took over at this point, guiding her in the design of the optical tube assembly and encouraged her to do some of her own design work based on my initial drawings, which she did without hesitation.

When we started working with the tools she learned very fast and quickly became a master at the drill press, something she'd never used before. I kept her away from the table saw but she was easily trained and became comfortable using the band saw. She even used the milling machine as a big drill press to bore out the hole in the homemade eyepiece holder. All in all Hannah did a great job, learned quickly, did work on her own at home to keep the project moving and was at the clubhouse every Thursday night until completion.

That final night was a special night! She got to feel the thrill of finishing a telescope and seeing all the many parts come together as one. Then to the ultimate – first light. She experienced that feeling that only comes from peering into the eyepiece of your telescope, the one you built yourself, for the very first time. Indeed - it put quite a smile on her face.



Hannah Falewicz with her new telescope and pipe mount

~ Submitted by Mike Hill ~

Comet C/2011 L4 (PANSTARRS) Dim, but Still Around . . .

Comet PANSTARRS is moving away from the Sun and is becoming difficult to see in moderately sized telescopes. On the evening of May 31, PANSTARRS was near Polaris and was producing a thin 7-degree tail. In order to image such a wide field I would have to resort to using camera lenses instead of my telescopes. My 80-200mm f/2.8 zoom lens would give me maximum flexibility in this attempt.

I set up my G-11 equatorial mount on the observing field at the Clubhouse and mounted the lens and my Canon 20D DSLR to the mount's dovetail plate adapter. I placed Polaris into the field of the viewfinder and started an automated series of image acquisition. Due to light pollution from Nashua, NH, I could only open the camera shutter for 2.5 minutes before the image was completely oversaturated. Even with the nasty light pollution gradients I was able to see the comet on each sub frame.

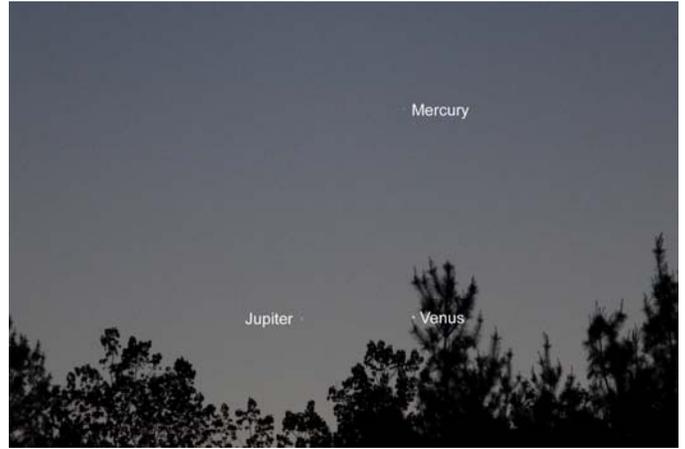
While my rig was automatically taking images, I wondered if I could, in fact, see the comet with my own eyes. I wandered over to the 17-inch Dobsonian and convinced Steve Clougherty to allow me to attempt to find Comet PANSTARRS. Using my photos as a reference, I star hopped to the comet. Steve and I both agreed that it was probably dimmer than 10th magnitude. The comet was dim but it was easy to pick out in the eyepiece.



Comet C/2011 L4 (PANSTARRS) and Polaris. Image by Al Takeda

Planetary Trio Images: Mercury, Venus and Jupiter . . .

On May 27th, Mercury, Venus and Jupiter formed a triple conjunction at sunset. The following images are from that evening.



Conjunction from the ATMoB Clubhouse. Image by Al Takeda



Conjunction from the roof of the Center for Astrophysics. Image by Dick Koolish



Closeup of the conjunction at the CfA. Image by Dick Koolish

**June Star Fields DEADLINE
Sunday, June 23rd**

**Email articles to Al Takeda at
newsletter@atmob.org**

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed June 6, 2013

Amateur Telescope Makers of Boston, Inc.
c/o Tom McDonagh, Membership Secretary
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FIRST CLASS

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PUBLIC OUTREACH

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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 Daylight Saving Time (DST) from Universal Time (UT) subtract 4 hours from UT.

Jun 12 Mercury at greatest eastern elongation, 24-deg. (Evening)
Jun 16 First Quarter Moon (Moonset at midnight)
Jun 20 Mercury 1.9-deg. S. of Venus
Jun 21 Summer Solstice
Jun 23 Full Moon (Largest in 2013)
Jun 30 Last Quarter Moon (Moonrise at midnight)
July 3 Venus in M44 (Beehive Cluster)
July 8 New Moon