First Light

The Newsletter of the Cape Cod Astronomical Society

July, 2014 **Vol. 25 No. 7**

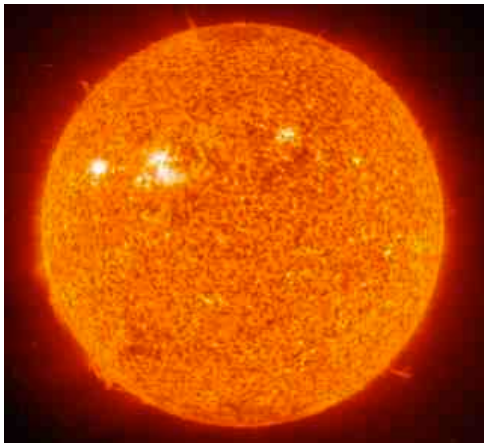
Lots Going on at the "Dome" in May and June…

(Stories follow on page 3.)

- **Joseph Bernier's Wixon 5th Graders visit Saturday, May 31st.**

- **Last "Quarter Moon Saturday" Star Party takes place Saturday, June 7th.**

- **275!!! Dennis-Yarmouth Regional High School Students view the sun using CCAS' solar scopes during June.**



- **Kim Sullivan's Wixon 5th Graders visit Friday, June 20th; teacher sends donation to CCAF!**

Next Monthly Meeting: is Thursday, July 10th, at 7:30pm. Please note that is the SECOND THURSDAY of the month. Educator Nancy Gifford of Harwich will introduce us to the NASA GPM (NASA Global Precipitation Measurement) mission and her work in that area. Public welcome. Please join us. The annual CCAS election of officers takes place July 10th.

Reminder: Summer Star Parties began June 26 and continue every Thursday at 8:30pm until end August. Public welcome.

In this issue: Lots Going On at the Dome / New member / Election coming: need nominees / Looking for speakers August & later / Equipment notes / "Discover Astronomy" app for newbies / Dark Skies in Maine / Ceres and Vesta 10" / many planets

Bright New Stars:

We were pleased to welcome Paul Katanik to membership in CCAS at our June meeting. Paul and his wife Lois are newly moved to East Dennis. Paul reports that they live on Quivet Marsh so "we have excellent and open night skies, when clouds permit. We've lived in the Washington DC and the New York City suburbs for the last 40 years and have not had a lot of opportunity to view the skies unless going very far out into the country-side. As a kid, I used to go to the Hayden Planetarium (now the Rose Center for Earth and Space) in NYC and just wander in awe. I just bought an Orion "starter" telescope (and we do have binoculars) so we're eager to learn the basics of Astronomy and the night sky." Welcome Paul and Lois!

We like to profile new members in our Society in this section of *First Light* each month. If you are a new member and have not yet been so recognized, or might have new information for us (background, astro equipment preferred, interests, etc.) on yourself or someone else, please let us know (email info@ccas.ws).

PLEASE CONSIDER SUBMITTING AN ITEM OR ARTICLE FOR PUBLICATION IN *FIRST LIGHT*.

CCAS News Items and Current Events:

CCAS Meetings:

Please note: the annual election of officers for CCAS and one member to serve on the Cape Cod Astronomical Foundation Board will take place at our July meeting, 10 July.

If you have any interest in nominating yourself or another member for president or other office, please contact Ed Swiniarski. Thank you.

["Goings on" at the Dome during May and June: please see **From the Dome** on the next page.]

Many thanks to Bill Romanishin, who provided us with a wonderful tutorial on "Binary Asteroids" at our June 12th meeting. Bill is Professor Emeritus at the University of Oklahoma and is an expert at optical CCD imaging of astronomical objects using large and small telescopes and associated image processing.
Some of the things we learned from Bill:

- Most asteroids have elliptical orbits and can be found, for the most part, between Mars and Jupiter.
- There are many binary asteroids but they are not easy to identify since one component of many is very small and faint with the distance between the components often less than 1".
- Evolving techniques in observing asteroids using radar astronomy are teaching us more and more about these binary objects.
- We learn a lot about binary asteroids by observing changes in the light curve as the minor component eclipses the major. Google "22-Kalliope" to learn more.

Educator Nancy Gifford of Harwich will introduce us to the NASA GPM (NASA Global Precipitation Measurement) mission and her work in that area at our July 10th meeting. Please note: this is the second Thursday of the month! A Master Teacher, Nancy combines her work in the GPM field with teaching science at the Harwich Middle School. Her GPM work includes developing and piloting lessons and materials related to tracking global precipitation.

We are hoping to have a return visit from Dr. Colin Bishoff for a presentation to CCAS later this summer. Colin is a post doc at the Harvard-Smithsonian Center for Astrophysics. You will remember the fascinating talk he gave us last year on studies of the Cosmic Background Radiation from sites at the South Pole. More info on Dr. Bishoff when details are worked out.

We are looking for speakers for August and later meetings in 2014. Please let us know if you have any leads…

or, even better, volunteer to give a talk yourself!

Thanks to Mike Hunter, our Program Chair, for lining up these special topics and speakers; thanks to all who have agreed to make presentations, past and future.

Members, *PLEASE* participate in the effort to recruit good speakers to present programs in astronomy and related sciences at our meetings. Please send any ideas or contact information to Mike or to info@ccas.ws . For sure he will follow up.

Reminder:

The 2014-2015 dues cycle begins at our July meeting. Dues for most folks are $30/year. We need this money to pay our bills and support our Observatory! Please bring your check to the July meeting or mail to CCAS, 34 Ridgewood Rd. Orleans MA 02653. Thank you.

From the Dome:

The summer schedule of weekly Thursday Star Parties at The Schmidt began Thursday, June 26, at 8:30pm and will continue thru end August. Public always welcome!

As always, "Private" group or individual observing sessions at the Werner Schmidt Observatory may be scheduled by contacting Observatory Director Joel Burnett at Joelburnett@comcast.net or sending an email to info@ccas.ws

Our Society exists to promote observing! Help us promote this objective by asking for time at the Dome! CCAS has both 8" and 14" Dobsonian telescopes for loan to members. If you wish to borrow one of these 'scopes, contact info@ccas.ws

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"Goings on" at the Dome in May and June:

Here's a little more information on the "Dome" stories introduced on page 1.

- Teacher Joseph Bernier's Wixon 5th Graders visit Saturday, May 31st (photo on page 1):

Joel Burnett sent in this report on the day after this special star party:

"Beautiful evening with 5 students, 5 parents, and Mr Joe Bernier. Thank you Bernie and Gail!"

"We had guests from the DYRSD school system -- Nathanial Wixon Elementary School's 5th grade class (5 students, and five parents). Mr. Joseph Bernier's class visited the WSO on Saturday, May 31st at 8:30 p.m. Gail Smith, Bernie Young and Joel Burnett set out three Dobsonian reflectors for viewing the planets. Students were allowed to use the two eight inch scopes to point to the moon, Jupiter, Mars and Saturn, while staff members assisted with the 18" Obsession telescope to view the same objects with different eyepieces. The students were then treated to a visit to the dome to see how the 16" Meade Schmidt-Cassegrain telescope and equipment operate.
"Back in the warm room, Bernie shared the star finder pointing device he received while in the 6th grade and took questions from students and parents.
"Finally, a video of what our solar operations were able to capture earlier in the week was displayed and discussed. Mr. Bernier sent a follow-up note the following week to thank us and say that the students were still excitedly talking about their visit to the Werner Schmidt Observatory!"

- Last "Quarter Moon Saturday" Star Party takes place Saturday, June 7th.

Again, Joel reports:

"We had a good staff meeting and accomplished a few things at our star party too. I think Hank (Ricci) aligned the 18" Obsession better than I've ever seen it which allowed us to easily GoTo NGC 457, the Owl Cluster – very entertaining (Mike Hunter's idea.) Gus and Mike took photos with the Ritchey–Chrétien 'scope on the Losmandy mount. Gail and Bernie took video of the moon on the MallinCam. And a fine after-party too…"

- 275!!! Dennis-Yarmouth Regional High School Students View the sun using CCAS' Solar scopes during June:

Bernie Young sent in this report on a remarkable outreach effort:

"In June, four teachers at D-Y High School brought 14 classes totaling about 275 students to the Werner Schmidt Observatory to view sunspots, active regions, filaments, and prominences on the sun with our two hydrogen-alpha telescopes. These telescopes pass a narrow band of red light and can be adjusted for the Doppler shift that occurs because one side of the sun rotates towards us and the other side away from us. Also in service was our 16" SCT with a solar filter for viewing sunspots in black and white.

"Because we now have internet service at the Dome, students could compare what they saw with photos taken earlier each day by the Interface Region Imaging Spectrograph (IRIS) satellite. Online photos were also viewed to show where filaments and active regions were a week earlier and how they had changed. Another web site was visited to show photos of the sun that looked just like the views in our telescopes (good to have when we might have clouds or rain!

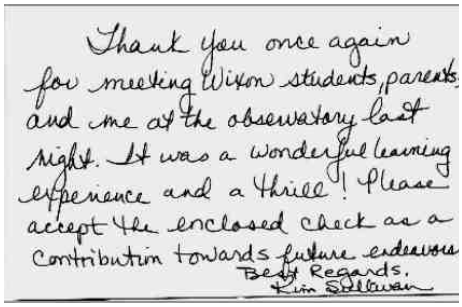
"Principle Ken Jenks stopped by during one of the classes, and took many photographs. He stayed afterwards to do some viewing and receive a description of how we put this program together.

"Thanks to Gail Smith, Mike Hunter, Hank and Marylou Ricci, Joyce Burchstead, Charlie Burke, and Gus Romano for staffing the observatory during the three days the students visited. Without the help of staff we could not have put this program on no matter what equipment we had."

- Kim Sullivan's Wixon 5th Graders visit Friday, June 20th; teacher sends donation to CCAF!

Joel, Bernie, Gail and Peter hosted a visit of a second group of Wixon 5th graders to the Dome on Friday, June 20th. We had about 14 visitors: students, parents, and teacher Kim Sullivan. The students themselves worked with two of our small Dobsonian 'scopes to view Mars and Saturn and also looked at Saturn through our big 18"

Obsession Dob. Gail had the 16" working well also providing views of Saturn using our excellent new


Thank you once again for meeting Wixon students, parents and me at the observatory last night. It was a wonderful learning experience and a thrill! Please accept the enclosed check as a contribution towards future endeavors.
Best Regards,
Kim Sullivan

[Thanks to Kim Sullivan for her note and donation.]

Ethos 13mm eyepiece. The highlight for the evening was a "good as it gets" five-minute horizon-to- horizon overpass of a *blazing* (mag -3.2) International Space Station; this was as good an ISS viewing as many of us have ever seen.

Many thanks to Joel and Bernie for sending us these informative and entertaining reports on an amazing spectrum of outreach taking place these days at our observatory. Thanks also to teachers in the D-Y system, their students, and many supportive parents for taking up the challenge and coming out to learn about the day and night sky!

Some Equipment Notes from the Dome:

Joel reports that Gus Romano has facilitated non-profit donations of computers from his former employer: much needed upgrades to existing equipment. Gus is helping set up these new machines including assistance in accessing copies of Windows 7 operating system software from D-Y sources.

Many thanks to Werner Schmidt for underwriting our purchase of a new 13mm Ethos eyepiece!

… and a big thank you to Mike Hunter for building a new parallelogram mount for use with binoculars at the observatory. The mount is modeled after the one Gail Smith has lent to the observatory. A parallelogram mount for binoculars is especially valuable when multiple observers wish to look at the same target: once someone has centered that target in the viewing field, the binoculars can be raised or lowered to fit the eye-level of all interested observers without losing the target in question.

Minutes:

The minutes of our June meeting are on our website; click on the "Minutes" button at www.ccas.ws or go to http://www.ccas.ws/minutes/ccasminutes061214.pdf

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Special Announcements:

We have two somewhat unusual announcements to make this month, one offering an ipad app that should prove very valuable to "new" amateur astronomers and the other offering a special opportunity for very dark sky viewing.

"Discover Astronomy" app for ipad and android tablets:

Get to know the night sky with Astronomy magazine's new app for iPad and android tablets. Only $1.99 - Great for beginners.

Google "Discover Astronomy App" or go to website address provided in our reference 7 at the end of this *First Light*.

I have downloaded the app and think it would be a most valuable tool for "new" aficionados of our amateur astronomy hobby to learn "how to" think about and observe the night sky. Anyone interested please contact me and I'll be glad to give you a demo. Useful for us grizzled old observers, also.

Dark Sky Star Party and Retreat at Medomak Retreat Center in Washington, Maine:

David Brenner sent this announcement to info@ccas.ws and asked if we might put it in our newsletter. This looks like a very attractive opportunity.

My name is David Brunner, and I am the Director of Medomak Retreat Center in Washington, Maine. We are located in the mid-coast region of Maine (approximately 3 hours outside of Boston), and we have some of the darkest skies in the northeast with a limiting visual magnitude of 6.3 (SQM value: 21.3 MPSAS).

This year, August 19-23, 2014, we are putting on a 4 night star party and retreat aimed at providing excellent observing, along with some creature comforts that are often lacking at your standard star party. Medomak is an adult retreat center and family camp that has comfortable cabins, excellent food, as well as a power ready observing pad for your telescopes and equipment (We have some house telescopes, too). Additionally, this retreat is being limited to a maximum of 50 people, so there's plenty of space to spread out and not worry about anyone tripping over your equipment.

Our retreat is facilitated by Sky and Telescope's Senior Contributing Editor J. Kelly Beatty, amateur telescope maker Bruce Berger, and renowned artist (and amateur

astronomer) Greg Mort. We hope you can join us for four days and nights of spectacular viewing, fascinating talks and presentations, and some nice creature comforts.

For more information check out this website: http://www.medomakretreatcenter.com/starparty.php

or contact David at family@medomakcamp.com

July Observing:

Mooncusser's Almanac and Monthly Alert[1]
JULY 2014

Object	JULY 1 (EDT)	JULY 15 (EDT)	JULY 31 (EDT)
Sun	R: 05:10 S: 20:19	05:19 20:13	05:34 19:59
Moon	R: 09:30 S: 22:30	22:02 09:32	10:13 22:00
Mercury (predawn)	R: 04:23 S: 18:52	03:53 18:43	04:46 19:37
Venus (predawn)	R: 03:13 S: 17:57	03:21 18:22	03:42 18:42
Mars (evening)	R: 13:34 S: 00:45	13:11 00:03	12:50 23:19
Jupiter (early evening)	R: 06:32 S: 21:21	05:53 20:36	05:08 19:45
Saturn (evening)	R: 15:52 S: 02:12	14:55 01:16	13:53 00:12
Uranus (late nite)	R: 00:38 S: 13:27	23:44 12:32	22:40 11:29
Neptune (evening)	R: 23:09 S: 10:09	22:14 09:12	21:10 08:08
Pluto (predawn)	R: 20:06 S: 05:41	19:10 04:44	18:06 03:39

Please see resources in June's *Astronomy Magazine*, pp 36-43 and *Sky and Telescope*, pp 43-58, and Reference 5 for good guides to the July sky. See p 41 in *Astronomy*, and reference 6 for positions of the moons of Jupiter for July.

Here are observing highlights for July at Cape Cod:

- Asteroids Vesta and Ceres are only 10' apart the night of July 4-5, 2014:
  Please revisit the cover story in our May issue on the very close approach asteroids Ceres and Vesta will make this month after more than two months of a slow and steady approach to one another. Finder charts can be found in our May *First Light* as well in articles in the July issues of *S&T* and *Astronomy*. A very special observing opportunity: not only the night of closest appreoach (7/4) but many nights preceding and following. Try binoculars!
- July is the second month in a row this year when you can see **every planet** at least some time of night at Cape Cod. Check out apparition times in our Almanac at left. Even Pluto: the dwarf planet is at opposition on our 4th of July and "blazes away" at mag 14.1! Try it a couple of hours after rise times as shown at left.

Minima of Algol[1,3], July:

Algol, a variable double star in Perseus, shines normally at mag 2.1 but once every 2.87 days dims to mag 3.4. The dimming is caused by the dimmer of two self-orbiting stars eclipsing the brighter as viewed from earth.

There are two late night and one *prime time* occurrences of the minima of algol for us this month: Friday-Saturday 7/4-7/5 at 1:01 (am), Wednesday-Thursday 7/16-7/17 at 00:16 (am) and (prime time) Saturday, 7/19 at 9:05pm.

Using binoculars or a small telescope, try to begin viewing two to three hours before the minima to watch the dimming and up to two to three hours after the minima to watch the brightening.

Declination Tables for the Moon[2] during this month please contact your editor for information or sources.

Moon Phases, July, 2014

First QTR Saturday, July 5th at 7:59am EDT
Full Moon Saturday, July 12th at 7:25am, EDT
Last QTR Friday, July 18th at 10:08pm EDT
New Moon Saturday, July 26th at 6:42pm EDT

A PORTION OF THIS PAGE IS INTENTIONALLY LEFT BLANK TO REMIND ALL MEMBERS THAT THERE IS ALWAYS PLENTY OF ROOM IN *FIRST LIGHT* FOR YOUR CONTRIBUTIONS

Cape Cod Astronomical Society

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Mailing Address: A. P. Kurtz, CCAS Treasurer, 34 Ridgewood Rd, Orleans MA 02653

Cape Cod Astronomical Foundation

Chairman	Werner Schmidt	508-362-9301
Vice Chairman	Michael Hunter	508-385-9846
Director of R&D	Bernie Young	508-394-1960
Secretary	Ed Swiniarski	508-896-5973
Treasurer	Pio Petrocchi	508-362-1213
Observatory Director	Joel Burnett	508-221-7380
Observatory Phone Line		508-398-4765

The **Cape Cod Astronomical Society** meets at 7:30 pm on the first Thursday of every month in the library of the Dennis-Yarmouth Regional High School in Yarmouth, Massachusetts. Meetings are open to the public. Membership dues are $30 for adults, $15 for students in two year colleges and part year residents, and no charge for spouses or for students in K-12 schools.

REFERENCES AND NOTES FOR THIS ISSUE:

1) Information for The Mooncussers Almanac and Monthly Observing Alerts was extracted from Sky Events, Astronomy Magazine Online (Astronomy.com), Stargazing.net's Planet Rise/Transit/Set calculator (http://www.stargazing.net/mas/planet2.htm), *Astronomy Magazine*, *Sky & Telescope Magazine*, *Sky and Telescope Skywatch 2011*, and other sources. The *Observer's Handbook, 2010 and 2011,* published by The Royal Astronomical Society of Canada is also an important reference, particularly for information on lunar libration and declination and the minima of Algol.

2) Information on how Libration and Declination Maxima and Minima can make visible parts of the moon normally hidden was reviewed in the January2007-January2008 *First Light*. Quick recap: Max Long brings to view extra right side; Min Long, extra left side; Max Lat, extra north side; Min Lat, extra south side. Max Dec puts it high in our sky during its transit; Min Dec puts it low.

3) Algol is an eclipsing variable star in Perseus which has its brighter component eclipsed or covered by its companion once every 2.87 earth days. When the dimmer component is not eclipsing the brighter, Algol appears typically about magnitude 2.1; when eclipsed, magnitude 3.3 The minima usually lasts about two hours with two hours on either side to bring it back to mag 2.1. Good comparison stars are γ-Andromedae to Algol's west, mag 2.1, and ε-Persei to its east, mag 2.9.

5) Here is the web address for Astronomy Magazine's "The Sky This Month" online for July:
http://www.astronomy.com/magazine/sky-this-month/2014/05/pluto-comes-to-the-fore
See also S&Tresources online at http://www.skyandtelescope.com/

6) *S&T*'s interactive Java utility for showing the positions of Jupiter's main moons for any date and time:
http://www.skyandtelescope.com/observing/objects/planets/3307071.html :
for Saturn's moons: http://www.skyandtelescope.com/observing/objects/planets/3308506.html

7) Website for Astronomy Magazine's "Discover Astronomy" App:
http://cs.astronomy.com/asy/b/astronomy/archive/2014/06/18/get-to-know-the-night-sky-with-astronomy-magazine-39-s-new-app.aspx?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=ASY_News1_Sub_140620_Final&utm_content=