



First Light

The Newsletter of the Cape Cod Astronomical Society



March, 2014Vol. 25 No. 3

JOIN US AT THE SCHMIDT THIS MONTH!

Mooncusser's Almanac and Monthly Alert¹			
MARCH 2014			
Object	MAR. 1 (EST)	MAR. 15 (EDT)	MAR. 31 (EDT)
Sun	R: 06:14 S: 17:31	06:52 18:47	06:24 19:04
Moon	R: 06:16 S: 18:07	17:56 06:18	06:55 20:08
Mercury (morning)	R: 05:09 S: 15:36	05:52 16:23	05:47 17:07
Venus (morning)	R: 03:51 S: 13:56	04:42 14:56	04:32 15:09
Mars (late night)	R: 21:13 S: 08:23	21:12 08:25	19:47 07:11
Jupiter (all night)	R: 12:14 S: 03:22	12:19 03:27	11:20 02:28
Saturn (late night)	R: 23:25 S: 09:32	23:29 09:36	22:23 08:32
Uranus (evening)	R: 07:26 S: 19:59	07:33 20:08	06:32 19:09
Neptune (morning)	R: 06:05 S: 16:58	06:11 17:06	05:09 16:06
Pluto (predawn)	R: 03:10 S: 12:46	03:16 12:52	02:13 11:50

Next Monthly Meeting: is Thursday, May 6th, at 7:30pm: Observatory Director Joel Burnett and Research Director Bernie Young will present “**State of the Observatory**” bringing us up to date on developments at The Schmidt over the last year. Public welcome. Please join us.

Reminder: The 2013 Dues Cycle began July 1. If you have not yet participated, please bring your check to the March meeting or mail to CCAS, 34 Ridgewood Rd. Orleans MA 02653. Thanks to all who are paid up!

Reminder: The next once-a-month “Quarter-Moon-Saturday” Star Party takes place on March 8th at 7:30pm.

In this issue: / New member / CCAS in the *Cape Codder* / Daylight Savings Time / vernal equinox / Pallas / Quasar / Occultation of Regulus / What is a Star Party? /

Bright New Stars:

We are pleased to welcome Elizabeth Davies of Falmouth to CCAS membership. Elizabeth joined us last month. She is “senior”, has binoculars, is an “amateur in astronomy”, loves the clear night sky, and lives on Cape all year round. We wish you many clear night skies, Elizabeth. Welcome aboard!

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:

Many thanks to the members of the Observatory Staff who conducted an open-house: "A Visit to the Schmidt- the Werner Schmidt Observatory" for all CCAS members and guests for our February meeting. Since most of time our sky was overcast, staff presented and discussed with our guests the Observatory's multiple telescopes and cameras and their capabilities. Visitors were invited to attend future meetings and star parties. There were one or two brief glimpses of Jupiter.

Observatory Director Joel Burnett and Research Director Bernie Young will give the annual "State of the Observatory" presentation at our March 6th meeting in the D-Y library. The presentation will highlight key events and improvements in equipment and capabilities at The Schmidt over the past year.

CCAS members Larry Brookhart, (Harwich Observatory Director), and Gus Romano will present "Harwich Observatory" at our April 4th meeting. Larry has been developing an observatory at the Harwich elementary school (now part of the Monomoy Regional School District) for several years; Larry and Gus will update us on capabilities and activities.

At our May 1 meeting, Peter Kurtz will present "Highlight Capabilities of the (\$2.99!) Sky Simulation Program and Telescope Control Program ,Sky Safari"; Mike Hunter will discuss a special aspect of using this powerful app: "The Use of Sky Safari Pro and SkyFi in the Acquisition and Evaluation of Astrophotographs". As always, public welcome.

Thanks to Mike Hunter, our Program Chair, for lining up these special topics and speakers; we also thank the Observatory Staff, Mike, Larry and Gus for agreeing to present.

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.

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!

Reminder: The 2013 Dues Cycle began July 1. As of now 43 of 62 members (70%) are paid up (does not include 16 active members who are "permanent", spouses, students, etc.)

If you have not yet participated in this cycle, please bring your check to the February meeting or mail to CCAS, 34 Ridgewood Rd. Orleans MA 02653. Thank you.

CCAS Outreach Makes News!

We are pleased to reprint here a short clip on club outreach to students as reported in the *Cape Codder*, 2/14/14:

EDDY ELEMENTARY

Under the auspices of the Astronomical Society of Cape Cod (*sic*), many Grade 5 students and parents from Ms. Stratico's and Mr. Torres's science classes had the opportunity to visit the Werner Schmidt Observatory on the grounds of D-Y High School for an evening of star gazing on Fridays, Jan 24, and Jan 31. They were able to see many star constellations as well as the planet Jupiter and its moons. The students were impressed with the operation of the telescope in the observatory.

Once again, congratulations to Joel, Bernie, and colleagues for making these visits by 5th graders so successful!

Minutes:

The minutes of our February meeting are on our website; click on the "Minutes" button at www.ccas.ws

or go to
<http://www.ccas.ws/minutes/ccasminutes020614.pdf>

From the Dome:

The next “Quarter Moon Saturday” Star Party takes place at The Schmidt on March 8th, at 7:30pm. Future dates are: April 5th, May 3rd and June 7th.

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

March Observing:

Please see resources in March’s *Astronomy Magazine*, pp 36-43 and *Sky and Telescope*, pp 43-58, and Reference 5 for good guides to the March sky. See p 41 in *Astronomy*, and pp 52-53 in *Sky and Telescope*, and also reference 6 for positions of the moons of Jupiter for March; timings for special phenomena of the moons of Jupiter (shadow transits, occultations, etc.) and timings for “the great Red Spot” of Jupiter can also be found on pp 52-53 in the *S&T*.

Daylight Savings Time begins at 2am on Sunday, March 9th.

The **vernal equinox** takes place at 12:57pm on Thursday, March 20th. Most people know that on this day there are almost exactly twelve equal hours of daylight and nighttime (“equal nox”) regardless of where you live on the planet. What many people might not know, however, is that at the equinoxes in spring or fall, the angle between straight up and the highest the sun gets in your sky is equal to your latitude; e.g. for us at Cape Cod (latitude 41.6°) the highest the sun will get on equinox day is 59.4° above the horizon!

Observing Highlights for March:

- **Jupiter and its Moons** continue to star in prime time in March.
- The big asteroid **Pallas**, mag 7, is nicely positioned high in the southern night sky all this month. Viewing will be best early or late

in the month when the moon is not lighting up the sky.

- **Quasar 2C 373**, mag 13, and 2 billion light years distant in Virgo, can be seen this spring using our 16” telescope. Come to our star party on March 8th and see photons that left the quasar 2 billion years ago.
- **Mercury** and **Venus** are at their best this month. On the 22nd, Venus, at mag -4.5, two magnitudes brighter than Jupiter, is at its greatest western elongation 47° above the horizon just before sunrise. Observe Mercury and Venus together a half hour before sunrise on March 14th... a great photo-op.
- A most unusual event takes place this month. In case you might be able to be off Cape...the asteroid **Erigone, 45 miles wide, will occult the naked-eye visible bright (mag 1.3) star Regulus** in Leo a bit after 2am on the night of March 19-20 for folks in a path leading from west of Albany through western Connecticut and through New York City. It is *most unusual* for an asteroid to occult a *naked-eye visible* star over such a highly populated area. See the story in the March issue of *S&T*, p 30, for details.

Minima of Algol^{1,3}, March:

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 four evening, mid night or predawn occurrences of the Minima of Algol at Cape Cod during March: Friday, March 7th, at 1:41am EST; Wednesday, March 12th, at 8:19pm EDT; Thursday, March 27th, at 4:26am EDT; and Sunday, March 30th, at 1:15am EDT.

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 Moon² during this month please contact your editor for information or sources.

Moon Phases, March, 2014

New Moon Saturday, March 1st, at 3am EST

First QTR Saturday, March 8th, at 8:27am EDT

Full Moon Sunday, March 16th, at 1:08pm EDT

Last QTR Saturday, March 23rd, at 9:46pm EDT

New Moon Sunday, March 30th, at 2:45pm EDT

What Is a Star Party?

Last month, we received an inquiry at info@ccas.ws expressing interest in experiencing a Star Party and asking: "What is a Star Party?" and "For what audience is it geared?"

Maybe others out there would also like to know a bit more about Star Parties and how they work... at least those conducted at The Schmidt Observatory. So we have written this essay and put a copy on our website at "Star Parties and Activities Info".

OK. What is a Star Party?

Well, at our Observatory behind Dennis-Yarmouth High School, a Star Party is this:

Several Observatory Staff members (experienced amateur astronomers having knowledge of the night sky and our technical equipment) gather about an hour before visitors show up, usually about 7:30pm in the cooler, darker months, and usually about 8:30pm in summer. We go from then to about 10:30pm or later as weather and interest permit. Please click on the button "Star Parties and Activities Info" on our website, www.ccas.ws, to look at our current schedule and learn (for the winter months) what makes a given Star Party a "Quarter Moon" event. Before visitors arrive, staff members do things like align the telescopes, crank up videos on our (indoor) big screen TV, etc.

If it is clear, visitors have supervised access to the big permanently mounted 16" (diameter) telescope upstairs in our Dome and, if there is no threat of rain, we may have as many as four other telescopes out on the lawn. Sometimes visitors bring their own telescopes or binoculars. We look at all things in the sky from constellations to the moon and planets and far beyond (see below.) We even have daytime "Star Parties" where the "star" is our sun and we view it and its phenomena using a special solar telescope.

When guests arrive, one-on-one conversations start between with staff members. Inside or outside. Those discussions usually lead to moving to one of our scopes where we begin to look at and discuss targets in the sky which fit with the interests and sky gazing experience of visitor(s).

Who are the visitors? They are members of the Society and anyone wishing to visit; now and then, an experienced amateur astronomer or even a professional or professor. More commonly though, it is folks who learned, "Hey, there is an astronomical observatory at the Dennis-Yarmouth Regional High School... let's go check it out." We do great with kids over about 5 years old if they are shepherded reasonably by accompanying adults. There is nothing more fun for Staff Members than the big "Wow!" we'll get from a youngster the first time he (or even "older" folks) sees a crater on the moon or the rings of Saturn.

On a typical night we might have fifteen visitors made up of perhaps two families with or without children; one or more high school age kids, and several older individuals. If folks are brand new to the night sky we will usually start looking at constellations (e.g. the Big Dipper) outside, point to specific bright stars with a laser pointer, and then look through one of our scopes at whatever might be fun in a given constellation. For the more knowledgeable and experienced, we might search for and observe distant planets like Neptune, nebulae, star clusters, and distant galaxies. Everyone enjoys Jupiter and its moons or Saturn and its rings and moons!

What if it's cloudy or worse? More than likely we will meet rain or shine unless the weather might be dangerous (high wind or lightning.) We have lots to show and do inside when it's cloudy including *simulating* looking at the night sky: we can mimic almost exactly the experience of looking at the sky with the naked-eye, then binoculars, then more powerful telescopes using a very good night-sky simulation program with the "viewing" showing up on a big flat screen TV. We can also look at videos of special sights and observing projects from previous observing nights or browse interesting astronomy material on the web.

If you have any concerns on the night of the event about a possible cancellation, please call the observatory (508-398-4765) at 7:15 to check if anyone is there... wait at least 10 rings because it might take staff up in the Dome a bit of time to come downstairs to the phone. If someone answers, you confirm "no cancellation."

Is it scientific?

Try this: a senior member of our Observatory Staff is Director of Research at our facility. In recent months he has collected brightness variation for the light we can measure as an asteroid passes in front of a star; the variation in the light measured over less than a minute can shed light on the structure of the asteroid. That's research!

Two practical notes: there are no restrooms. And while the lower level of the Dome is heated, outside and up in the Dome room there is no heat and it can be cold during the winter season. Dress warmly.

No fees, no applications, no reservations. Just come and enjoy the night sky! All scheduled star parties are open to the public.

Please visit our website to learn more about our meetings [button: “Upcoming Speakers and Topics”] star parties [button: “Star Parties and Activities Info”], membership [purple button: “Become a Member”.] For information on where we are, click on a button "Old Website" and once there, click on "Meeting Location" viewing the two maps that are there: external for the Dome, and internal to locate the high school library where meetings are held.

For meetings, drive in the south entrance road and go around behind the main building. Park in the lot about half way down the building and go in the back door you will see. For Star Parties at the Dome, drive in the north entrance road all the way past the north side of the main high school building, through a gate, and on to park near our Dome.

Also check out "Schmidt Observatory" from the "Old Website" main page to learn more about our history and some of the personalities involved.

This essay can be found on our website. Click on “Star Parties and Activities Info” and look toward the end of those pages.

Please send any suggestions for improving this overview to info@ccas.ws

**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

President	Michael Hunter	508-385-9846
Vice President	Stanley Rivers	508-945-6126
Secretary	Charles Burke	508-394-9128
Treasurer	Peter Kurtz	508-255-0415
Observatory Director	Joel Burnett	508-221-7380
<i>First Light</i> Editor	Peter Kurtz	508-255-0415

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 March:

<http://www.astronomy.com/magazine/sky-this-month/2014/01/venus-rules-before-dawn>

See also S&T resources 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>
