

First Light Lite

October 3rd, 2018

Jim Lynch - Editor

Summer is over, but it treated CCAS rather well this year. We had excellent speakers for all of our meetings, and a full complement of three star parties each month (except when weather prohibited, of course!) CCAF was similarly active. A new pier mount was obtained for outside the WSO, and another is on the way. The main observatory telescope replacement is being actively pursued. So, equipment-wise, things are improving even further (from an already good starting point!)

Fall, which started September 22nd, got off with an extra-special event for CCAS - a "Day of Astronomy" in honor of Werner Schmidt's 104th birthday! There is a very nice article in the Cape Cod Times about this event, to begin with. The link is:

<http://www.capecodtimes.com/news/20180922/stargazers-gather-to-celebrate-observatory-founder-werner-schmidts-104th-birthday>

The pictures in the article of Werner and his family are quite nice, and I'd encourage you to take the time to look at this link.

From a more insider point of view, the event was well attended, with about forty or more people coming to it. It started with Mike Hunter and Jim Lynch giving short speeches honoring Werner, followed by a cake cutting ceremony and a "refreshments social" featuring both the cake and a variety of snacks. This was followed by two brief astronomy talks in the dome by Katie Sisson and Jim Lynch. Unfortunately, the cloud cover was dense (though the temperature was ideal), so that the Star Party portion of the festivities was cancelled. But, this small disappointment aside, the day was a great success, and Werner and his family were very appreciative of the event.

I think it would be appropriate in this instance to thank the Society members who put a good bit of preparatory work making this day a success: Mike Hunter, Jim and Chris Lynch, Katie Sisson, Hank and Mary Lou Ricci, Bob Cole, Ashish Dutta, and Charlie Burke. Many other CCAS members pitched in as well, especially with setting up and cleaning up, and a big thanks to them also!

The other "big happening" in the fall is the start of classes at DY HS, and thus the beginning of CCAS' efforts in mentoring astronomy honors projects. This fall there are fourteen students (seven groups of two) as well as some new projects: the Galilean Moons, Solar Spectroscopy, and Globular Clusters. Other "oldies but goodies" projects will still be pursued: Solar Rotation from Sunspots, Wide Angle Astrophotography, and Star Spectroscopy. We had just enough volunteers this fall, but certainly would welcome some more CCAS volunteers for the spring term. These students will also be coming to some of our Star Parties, and if you see them, give them a warm welcome and show them around!

As a last note, dues were due in August, and if you haven't paid them yet, Mike Hunter will be happy to collect them from you at the October meeting. Though checks are preferred, Mike Hunter will probably take anything that he get - Bitcoin, Chinese Yuan, IOU's, whatever! ☺ If you can't pay in person, contact Mike Hunter via email (mamhunter@yahoo.com), and he'll direct you as to where to send your check. (This is also on the website.)

Upcoming Speakers and Topics

October - Dr. Tony Stark, HSCfA. The Cosmic Background

Our understanding of the beginning of the Universe has advanced rapidly with the detailed study of background radiation in the radio and infrared. The result is a "Standard Model" that is both detailed and weird, with implications for new physics. Observational initiatives for the next decade, in particular the "Cosmic Microwave Background Stage 4", may yield information about the first tiny fraction of a second after the Big Bang.

November - Dr. Martina Arndt, Bridgewater State. Solar Eclipses.

December - Dr. Jim Lynch, CCAS. The Solar System - Its Formation and Basic Dynamics.

September 6 CCAS Speaker Dr. Mike Hunter, CCAS

Title: Astrophotography at CCAS

Our Treasurer and CCAF Board Chair, Mike Hunter, waxed poetic about the do's and don'ts of astrophotography, using examples from his and other members experience and files. After showing some of the "historic" photographs that CCAS

members took in the past, Mike proceeded to talk about what one needs to do using DSLR cameras. (Cooled CCD cameras were not on Mike's agenda, as a majority of CCAS's members use DSLR cameras, which are generally cheaper and easier to use, if not quite as sensitive.)

The techniques that Mike talked about were "flat frames", "dark frames" "bias frames" and stacking. Flat frames are a "non-issue" for DSLR cameras (a few hot pixels out of 10 million is not a problem), and bias frames are a second order current correction. For DSLR's, both can be ignored. (Dark frames are a consideration for CCD cameras!) Flat frames, where one takes a picture of a white background, helps eliminate the effects of dust motes, dirt, fingerprints, etc. Useful if your gear is a bit dirty. Stacking of shorter images (done via commercial or public software packages) is a necessity to increase SNR, if one doesn't have the luxury of a mount that can track for a *very* long time.

Focusing of a DSLR is of course important, and one really need a live view output from the camera to get this right.

Tracking the stars always seems like a good idea...unless you're also tracking a moving object like a comet, in which case you must choose which object you want to show up smeared/tracking. Mike made a good case that for a detailed, extended object like a comet, you should let the stars trail!

Mike also touched on planets, where the use of long focal length telescopes is advised. The planets provide plenty of light, so only short exposures are needed, and not fast, short focal length telescopes (which are harder to focus and deal with). A nice picture of Jupiter (by famed photographer Damian Peach) was used as an illustration.

Two major pitfalls for photography are moonglow and city light skyglow, which make photography of deep sky objects (galaxies, nebulae) hard or impossible. A nice picture of the Leo Trio of galaxies made just before moonrise emphasized this point.

Using the proper ISO setting on the camera is also important, and Mike used the Horsehead and Flame Nebulae as his examples. This was an especially nice picture, again using fairly simple equipment!

Mike then showed some spectrograms of M81 and M82 made using a diffraction grating filter. Spectroscopy is an ongoing initiative for CCAS, and there will be much more to say in the future!

To conclude, Mike showed some more of the very good photos taken by various CCAS members, reminding us that photography is as much of an art as a science!

September Meeting Minutes and CCAS Business

Our September business meeting concentrated on the logistics of the "Day of Astronomy" in honor of Werner Schmidt. As noted above, things turned out well!

Star Parties

From September thru June, we will have two regularly scheduled Star Parties each month taking place at 7:30 -10:30pm on the *Saturday* closest to the date of First Quarter Moon (about 7 days old). This is an increase from our old schedule of one per month in the fall, winter, and spring.

From July through August, we have three regularly scheduled Star Parties each month taking place on *Thursdays* at 8:30-10:30pm.

When the moon is near its First Quarter, the terminator (the line dividing light from dark) is favorable for viewing sunlight or shadow on the sides of craters. This time is also favorable for observing the dark side of the moon occult (visually cover) stars in the sky as the moon moves in its orbit. Depending upon the calendar, we may also be able to observe planets and other celestial objects.

Here is the schedule for fall "Star Parties" up to December, 2018; **the public is cordially invited:**

October 6,13

November 10,17

December 8

POSSIBLE CANCELLATIONS for Star Parties: Cancellations will be very rare since we have lots to do "inside" as well as outside. Even if the forecast is "iffy"; the Staff Leader for the night may elect not to cancel in spite of possible clouds. If clouds arrive after staff and guests have convened, a virtual Star Party will usually take place indoors to include overviews of the sky for that night using computer simulations with our big screen TV, videos of interesting sky events recorded previously, demonstrations and/or training on the use of scopes and other equipment, and consultation/discussions on things astronomical, etc.

However, sometimes a solid forecast for overcast or rain or a storm will result in cancellation of a given Star Party. **IF IN DOUBT ABOUT THE WEATHER AND THE STATUS OF A STAR PARTY, CALL THE OBSERVATORY AT 508-398-4765 AFTER 7:45 pm.** No answer means the event has been cancelled.

Directions to Dennis Yarmouth HS and Schmidt Observatory

For information on the location of our Dome behind Dennis-Yarmouth High School, click on the purple 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 and turn down the hall to your left to find the library.

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.

H&K directions

Please be reminded that Gus Romano or his delegate "host" a dutch-treat dinner gathering for members and friends each CCAS meeting night (before the meeting) at the South Yarmouth Hearth & Kettle restaurant at 5:45pm; (the meetings begin at 7:30 at D-Y.) The speaker for each meeting is always invited. Please join the group to dine and talk about all things interesting, including astronomy, each

month before our meeting. The H&K is at 1196 Rt 28, South Yarmouth, about a half mile west of the Station Avenue/Main Street intersection with Rt 28 (stop light).