

First Light Lite

OOPS! ☹

Dec 6, 2018

Jim Lynch - Editor

First, an apology for this being so late! I'll only proffer my usual excuse - I've been really busy! I'll try to be a bit more punctual next time!

In large part, I can repeat last month's introductory material in the newsletter...things are rolling along at a steady pace. There is one notable exception, though, which I'll put at the end. ☺

This month was a good one overall, with yet another excellent speaker starting it off (see the write-up below), a two star party agenda (one night with clear skies, even!), and the DY HS astronomy honors program for the fall continuing apace (with fourteen students participating). As said last month, we really could use more CCAS volunteers for the DY program next semester, as we just barely filled our personnel needs this time.

Regarding the 2019 speaker schedule, I (JFL) will be discussing it at tonight's meeting. We are off to a good start, though we still have a few spots to fill. Come with some ideas, if you can!

As to star parties, Charlie is doing a great job keeping a two-party-per-month schedule going. But again, he needs help and participation. He will help train anyone who wants to man a small or large scope or binoculars, so please contact him if you would like to be part of this important CCAS activity.

Another thread that we are pursuing hard this year is recruitment of new members. We are planning an "Alumni and Newcomers" event for spring, which we will put some effort and money into, and are also giving lectures at various venues to see if we can attract more people. As VP, Ashish Dutta will be in charge of this initiative, and will be coordinating efforts.

The final (rather big) piece of news, which many of you might have heard of already, is that we are deep in the process of ordering a new dome telescope. This is becoming a reality now. Mike Hunter and I will be talking about this at the

meeting tonight, so even if the lecture speaker's talk doesn't interest you, the new gear and capabilities should! I don't want to steal the thunder on this one, so all I will say is "be there tonight!" If you're not, I'll be supplying detail in next month's newsletter, or perhaps (if I can get time) in an addendum a bit sooner.

Upcoming Speakers and Topics

December 6 - Dr. Jim Lynch, CCAS.

The Solar System - Its Formation and Basic Dynamics.

Abstract

In this talk, I will first go through some of the basic concepts of solar system dynamics that are needed to explain the formation and development of the Solar System as we see it today. Kepler's Laws, Newton's Laws, Laplace and tides, resonances, nonlinear dynamics and chaos, and modern computer modeling will all be described using simple examples. With these mathematics and physics tools, astronomers have been able to piece together a plausible, if still somewhat incomplete, picture of how our Solar System formed, how it is evolving, and what its eventual fate may be.

Last Month's Speaker

November 1 - Dr. Martina Arndt, Bridgewater State University

The Beauty and Science of Total Solar Eclipses

I again owe an apology, in that I belatedly asked Dr. Arndt for her slides/notes late in the month, to use as a guide for our usual precis of the speaker's talk. When I get these, I will add an extended precis to next month's FLL. For now, let me just go with some informal notes I have (below). I've also reprinted Dr. Arndt's abstract.

Making scientific measurements of eclipses in situ on earth would at first seem like a rather dated practice in this era of satellites and "artificial eclipses" produced by coronagraphs. However, such instrumentation is not perfect, in that it blocks out part of the corona, and not just the Sun's or star's disc, so that it is not a complete replacement for in situ measurements at the locations of total solar eclipses. Thus Dr. Arndt and her team of colleagues (the Solar Wind Sherpas) have traveled all over the globe chasing down these exotic events and making scientific measurements. Dr. Arndt showed some of the beautiful images of the full solar corona, including its beautiful striations, and noted that solar physics models are now just to the point of where they can reproduce the larger scale patterns of the corona, indicating some reasonable degree of understanding. However, the extreme temperature of the corona (a million degrees, versus the 5600 degrees just below at the photosphere) is still a puzzle. We know that the Sun's extreme magnetic fields can and do act as very effective particle accelerators, but the details are still lacking. Perhaps the most entertaining part of Dr. Arndt's talk was her "travelogue". Dr. Arndt has been to Svalbard, the Bikini Atoll, northern Africa, and numerous other locations chasing these rare (but, as she showed, precisely predictable) events. Her slide show of this was a total delight!

Abstract

Total solar eclipses are not only beautiful, they are also excellent opportunities to do science. The Sun's surface (photosphere) is ~5,600 Kelvin, yet 2,500 km above the photosphere, in the corona, the temperature is over 1,000,000 Kelvin! This coronal heating problem is still one of the outstanding puzzles in solar physics. Since 1997, I have been part of a total solar eclipse research team known as the Solar Wind Sherpas. I have traveled with this group around the world to observe 11 total solar eclipses – we've been below the equator, above the Arctic Circle, to very remote islands, and most recently to the northwest US. In this presentation, I will share some expedition adventures as well as some of the science we have been able to do.

November Meeting Minutes and CCAS Business

Membership and upgrading our web site were the main discussions. Mike Hunter also gave an update on the status of our main observatory telescope replacem

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:**

December 8

Second star party cancelled due to the Holidays! ☺

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).