CAPE FEAR Skies

Monthly Newsletter
Cape Fear Astronomical Society
Serving Wilmington, NC and Surrounding Areas

Cape Fear Astronomical Society is a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code.

March 2021

President's Report

by Jon Stewart-Taylor

As I write this at the end of February, about 13% of all American adults have received COVID-19 immunization. I read an estimate that something like 80% would need immunization to bring the pandemic to its end. A good start, but a long way yet to go before we reach "normal" again. We're still holding (distanced) observing sessions twice this month (weather permitting), and the Messier Marathon. if you do a Marathon, send me the date and final total so we can put you in the MM Hall of Fame.

Starting this month I plan to focus on the completion of the New Astronomers Packet, which we will give to all new astronomers joining Cape Fear Astro. At this point, it looks like the packet will contain at least one book, an inexpensive planisphere, and a flash drive on which there will be many documents, a bibliography, and a page of links to good web sites for New Astronomers.

If you have suggestions for potential books to give or to include in the bibliography, or for documents or web sites to include on the flash drive, please post them to the e-mailing list, or send them to me (stewarttaylorj@gmail.com).

Another reminder: time to pay dues. $5 student, $25 individual, $32 family. Send them to

CFAS, P.O. Box 7685, Wilmington, NC 28406

or directly to the Treasurer (Ben Steelman) at the address in the club roster.

Due to the COVID-19 virus pandemic, we are now under "Modified Stay At Home Order". No CFAstro public events are planned. Meetings will be via Zoom. Member observing as noted, with "social distancing".

March 2021

Date – Event – Time

05 Last Quarter Moon

05 Club Observing – Location TBD; 07:00 PM

06 Mercury at westernmost elongation; 27 deg from sun in morning sky

06 Club Observing – Location TBD; 07:00 PM

12 Club Observing at Starfields; Shiloh Road Ivanhoe NC; 07:00 PM

13 New Moon

13 Club Observing at Starfields; Shiloh Road Ivanhoe NC; 07:00 PM

14 Cape Fear Astro Monthly Meeting; 07:00 PM; via Zoom

20 Vernal (Spring) Equinox

21 First Quarter Moon

28 Full Moon

Astro phenomena from https://www.universalworkshop.com/astronomical-calendar-any-year/

The Astronomical League's "Universe Sampler" Beginner Program

by Jon Stewart-Taylor

I've been looking into possible books to give to our New Astronomers as part of the New Astronomer's Package. One of several from the Astronomical League is the guide to the Universe Sampler observing program. It claims to be "A journey through the universe for the beginner". The first 2/3rds of the book are introductions to how to find things, and how to observe the sun and moon. Surprisingly, there's nothing on observing the planets (although observing planets is on the requirements). The last third of the book contains the observing lists required to complete the program, divided depending on whether you're pursuing it unaided-eye only, or with a small telescope or binoculars. The book ends with several reproducible sheets for use recording your observations for the program, one for sketching objects and one for just a log.

On 7 February, Karl Adlon and I had a short observing session in suburban Southport. I planned to observe the "Telescope Users Only: Deep Sky Objects (Winter Group)". There are 6 deep-sky objects list for Winter: M1 (Crab Nebula), γ And (Almach). and NGCs 404, 457 (ET cluster), 1528, and 2169 (37 cluster). One planetary nebula (well, supernova remnant), one double star, one galaxy, and three open clusters. That's a pretty fair sampling of types. What's notable, is that many of the most prominent deep-sky objects aren't included on any of the telescope observing lists. Specifically: The Andromeda galaxy; the Orion nebula; M35 in Gemini; any of the M36-37-38 clusters in Auriga; the brightest globulars (M3; M5; M13. M15, M22) or any of the summer Milky Way Messier objects.

The objects they do include are interesting in their own right, but can be difficult for a beginner, especially under suburban conditions with small 'scopes. NGC 404 is an 11.2 magnitude galaxy next to a bright star. The telescopic targets often include sketches of the objects so people will know what they're looking for. However, the majority of the sketches are listed as made using scopes of 8"-13" diameter- not typical scopes for beginners.

I've looked at the unaided-eye list, and it also has some, er, difficult, targets. Quite a few of them are 5th magnitude or dimmer, and will be invisible under suburban skies. They will be difficult even under good skies. I know my eyes aren't what they were, but I have never seen M5 or M11 unaided-eye at Starfields.

In Karl's back yard i was able to find and draw pictures of 3 of the 4 objects I looked for. I was not able to detect that 11th magnitude galaxy.

I'm hesitant to recommend this as our New Astronomer book. Anyone who completes the program will have been introduced to practically the entire spectrum of things amateurs observe, and will have learned to find and observe pretty much any deep-sky object. On the other hand, the objects the program does include can be difficult to find and sometimes not terribly exciting, especially for beginners with small scopes and poor skies. I'm especially disappointed that most of the "tourist traps" which bring observing joy to beginners are omitted from the telescope list.

I'm not saying the program is bad. It does require a high level of dedication, and above average equipment for beginners. It might be a good program if we recommend beginners try it under the guidance of a more experienced club member, and with a "bonus tourist traps" deep-sky target list added. I am inclined to find a more accessible book to include in the New Astronomer's Package.

Lesson 9

The Art of Seeing

The term, "seeing", as used in this lesson, is quite different from "seeing conditions" used in the previous lesson. Seeing in the previous lesson referred to sky conditions. Here, we are referring to the amount of detail that you can detect when looking at an object. Unlike sky conditions over which we have no control, there are many things that can be done to increase the amount of detail seen in the objects we observe.

Seeing detail in the objects that you observe is an art. As with any other art, such as playing a musical instrument or painting, it takes time, effort and practice to do it well. When looking through the eyepiece of a telescope, what you see or not see will depend on the following:

Sky condition: Even the most experienced observer will not see detail in objects under terrible sky conditions.

Condition of the telescope's optics: A badly collimated telescope or one with dirty optics will not show fine detail.

Your condition: If you are very tired and your eyes are strained, you will not see as much detail as when your eyes are rested. It is very important to take short breaks occasionally to rest your eyes.

How dark adapted you are: When you go from bright lights into darkness, for a few minutes you are virtually blind. It takes from 15 to 45 minutes or more for your eyes to adjust. Dark adaptation is a process that involves the production of Visual Purple - a photosensitive red or purple pigment in the rods of your eyes that is important for seeing in very dim light.

Use of a red light that is too bright or one that is not red enough can affect your dark adaptation. Your light should be as red as possible and only be bright enough to read your star chart that is close to you, not sitting on your worktable some distance away.

When trying for an especially difficult object, you may want to use more extreme measures to protect your dark adaptation. Don't look at a bright object such as Venus, Jupiter or the moon, and avoid getting stray light into your eyes. A black cloth draped over the head and eyepiece will help. When not at the eyepiece, red goggles or sunglasses will help protect your eyes from stray light. Don't laugh, it really works.

Two Starfields Pads Installed

by Jon Stewart-Taylor

A big thanks to Karl and Hank. Between the 3 of us, we've managed to install two observing pads of different types at Starfields. One is a 30"x30" pad suitable for dobsonians or small tripods. The other is a "Y" shaped pad built of 4x8x16 solid cinderblocks which can accommodate pretty much any tripod with radius 36" or less. Both pads are oriented to allow setting one tripod leg to the north based on solar noon, and carefully leveled.

These should help when setting up mounts to track the motion of the sky.

Karl adds: It was a nice, cool day and after starting work, we quickly lost our jackets.

Before the first shovel dug in, ribbon tape, flags and tripods were used lay out the 120º angles and edges of the paver runs.

Anticipating future mowing, the run to the North, the lowest of the 3 runs, was set flush with the ground. Starting from the center, the first 3 pavers wer set level. Then the remaining 3 pavers were set level with their respective starter paver.

Each observing spot is layed out with a space for vehicle parking closest to the driveway to the East and a pad or scope set-up spot on the west side of the vehicle.

Now we need some clear, moonless nights!

Jim Rutenbeck's "Pacman Nebula"

by Karl Adlon

This is a picture of NGC 281 that my friend, Jim, took at a star party last October in Iowa. He describes below how he obtained the image:

For your understanding: 9 exposures were taken with a Ha filter in the light path. Then that filter was removed , a OIII filter was inserted in front of the camera and 9 more exposures taken and then a SII filter was placed in front of the camera and 9 more exposures were taken. During processing I combine the 9 Ha exposures to make a stacked/integrated Ha image, and then create a stacked OIII image and finally a stacked SII image. Longer or more exposures help reduce the noise. Alone, each of these stacked images are in monochrome. One then assigns Ha to the color green, OIII to blue and SII to red. This is referred to, as the Hubble palette since most images taken by the Hubble telescope are processed in this way. You then combine these 3 images together to produce the final color image.

Telescope: 10 inch f4.7 Newtonian with Baader coma corrector
Mount: AP1200 GEM
Camera: ZWO ASI 1600mm
Narrow band Ha, OIII and SII filters
Total of 27 exposures of 5 minutes each
Processed in Astro Pixel Processor with color adjustment in Photo Shop

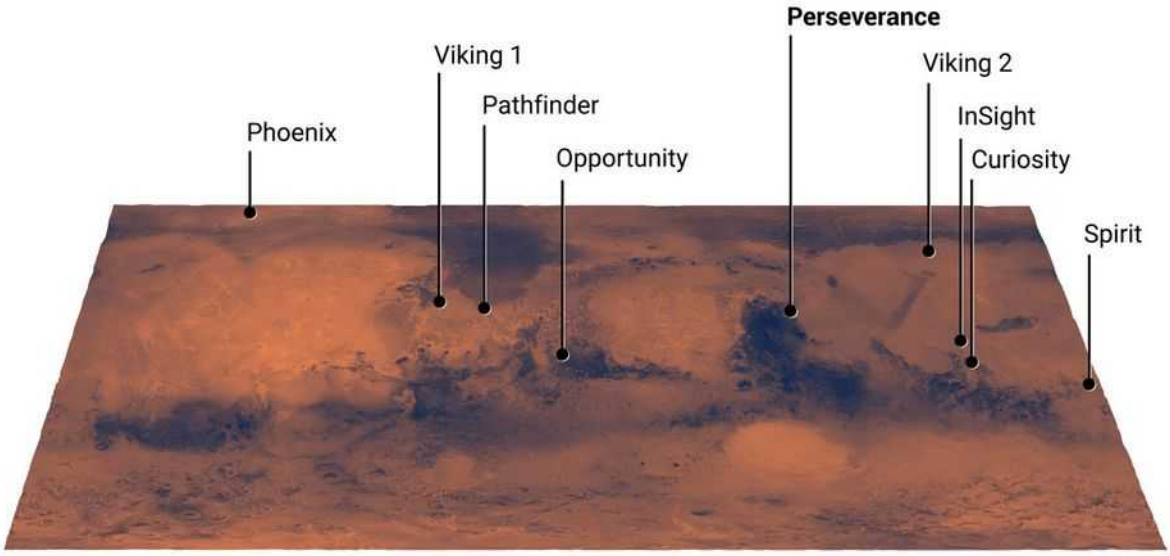
www.astroleague.org

Astronomical League Update

by Hank Lyon
Astronomical League Correspondent (ALCor)
hlyon8448@gmail.com

Once again, the Astronomical League has partnered with NASA for an Observing Challenge; the current iteration concerns the Perseverance Rover mission. While the outreach requirement of the challenge might be difficult to complete given our COVID challenges, completing the sketching or photography requirement by the March 18th deadline remains within reach. Although Mars is decreasing in angular size daily, the requirement to sketch or photograph the proximity of the Jezero Crater landing site relative to the outline of Syrtis Major is still possible.

For those of us who followed Mars at the recent opposition, you'll recall that Syrtis Major was one of the most prominent surface features visible, even on nights where the conditions were less than ideal. The drawing below, taken from the NASA mission website, reveals Syrtis Major as the dark, "triangular" surface feature immediately adjacent to the Perseverance Rover landing site.



In last month's newsletter, I had mentioned common elements among the various AL Observing Programs. Nearly all Observing Programs include a quick view of the program requirements. This is presented in a table format and is intended to summarize the key requirements of a given program without having to cull through the details. An example of a "Quick View" table is shown below. In this example, the general requirements for all NASA Observing Challenges are presented in the standard format.

Finally, with your annual dues payment, now is a good time to make sure CFAS has your updated contact information. Your physical address is shared with the AL so the quarterly Reflector magazine can find its way to your mailbox. If you're new to CFAS, it's probably not a bad idea to also provide me your mailing address via email so I can cross check it against our roster and make sure the information going to the AL is correct.

Quick View of Requirements	
NASA Observing Challenges	
Various	
Tools Used (Eyes (E), Binoculars (B), Telescopes (T))	T
Manual (M) / Device Aided (DA)	M / DA
Remote Telescopes Allowed	No
Visual (V) / Imaging (I)	V / I
Number of Levels	1
Number of Observations	Varies
Must be an AL Member	No
Recommended Minimum Instrument Size	Varies
Date Deadline for Submission	Yes
Special Equipment Required	No
Equipment Must Be Constructed	No
Observations Must Be Submitted to an On-Line Database	No

Future Venus-Jupiter Conjunction

by Karl Adlon

But not for us.

I'm sure that your keen observer's eyes spotted the date of the conjunction.

Editor's Note: Used in this Newsletter, "Cape Fear Astronomical Society" may be abbreviated "CFAS" or "CFAstro".

CFAS Correspondence:

Please contact the society at: CFAS, P.O. Box 7685, Wilmington, NC 28406

Members are welcome and encouraged to submit articles or other input for *"CAPE FEAR SKIES"*. Submit any and all interesting items for publication to Karl Adlon, Editor (email kmja79@yahoo.com).

Cape Fear Astronomical Society is a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code.

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Treasurer:	Ben Steelman
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Dues:

Dues for 2021 are $25 for Individual and $32 for Family Membership. Students dues are $5 per year.

Contact Us:

You can contact CFAS at info@capefearastro.org

Our website is http://www.capefearastro.org/