



"CAPE FEAR SKIES"

Cape Fear Astronomical Society Newsletter

Wilmington, NC and Surrounding Areas

March 2019



Message from the President

Greetings fellow Cape Fear Astronomical Society members. Welcome to the return of Cape Fear Skies. This newsletter is returning thanks to Karl Adlon. It is the first of more changes to come as the club moves forward. Work is also being done to update the club web site and calendar, thanks to Kristy Kidney.

On the administrative front, Billy Kidney continues to work on gathering historical documentation on the club's formation, while planning steps necessary to ensure our club is legal and recognized under our current name, "Cape Fear Astronomical Society". He is also documenting the requirements and benefits of applying for 501(3)(c) designation. Once we know the cost versus benefits ratio, we can make an informed decision on whether to move forward with that option.

I want to personally thank everyone who has stepped forward to donate their time and effort to these initiatives. I also wish to thank Tom Jacobs for his years of work maintaining the club web site and calendar. Without his many hours of dedication, we would not have a web site and calendar to build on.

Finally, if anyone wishes to volunteer to help with any of these or other club activities, please let me or any of the officers know. I'm sure there are tasks we can find for you to do!

Clear Skies,

Terry Herrin

President

Cape Fear Astronomical Society

Next CFAS Monthly Meeting

Sun, March 10, 7:00pm – 9:30pm

212 DeLoach Hall, UNCW Campus

GAStronomy Meeting

Sun, March 10, 5:00pm – 6:45pm

(Dinner, prior to the Monthly Meeting)

Mac's Speed Shop, 4126 Oleandar Dr.

Next Event - March Public Star Party

March 9, 6:00pm – 8:45pm

Carolina Beach State Park

From the Carolina Beach State Park website:
Astronomy Program

Come join Cape Fear Astronomical Society at Carolina Beach State Park Visitor Center to learn about the night skies. The group will have telescopes set up for viewing planets, stars and lots of other things. Program will begin around sunset and conclude 15 minutes before the park closes. Check the weather before coming as the program will be canceled due to poor viewing conditions. Call the park office for more information.

Message from the Associate Vice President

Great things are happening with our organization. We are researching ways to improve communication with our members and the general public. Some things we are looking into are updating our website capabilities, having member applications available digitally, and having signups for our public viewings. If you have a topic of interest or would like to present something at one of our meetings please email me at strgrazr@ec.rr.com. I look forward to all of us working together for a bright future.

Billy Kidney

CFAS Associate Vice President

Outreach = Reaching Out

April being the big science month in NC, there's a lot of events in April. So far we have one public observing, two Statewide Star-party nights, and one Wizard Night. I'll post more info about each event, so keep an eye on the e-mailing list and check the club calendar each month. I'm excited we have so many opportunities to reach out to new populations. --Jon Stewart-Taylor

CFAS will be the most important part of this public astronomy event at Cabin Lake Park in Duplin County, on April 6. All Y'all come!

By Jon Stewart-Taylor

As part of the 2019 NC Science Festival, the Cowan Museum is hosting an astronomy event at Cabin Lake Park (near Beulaville in Duplin County). There will be pre-dark activities, then a public observing session. CFAS will figure prominently in both.

There will be "daylight" activities 7-8pm. The Duplin County Public Library will be hosting most of this phase. I plan to do the 1000 yard solar system model, at least as far as Jupiter (400 yard model?), and other CFAS people are welcome to participate in daylight activities as well. One obvious activity would be a "telescope petting zoo", to show people how telescopes work, and what kind of scopes are available.

Once it's dark enough to start, we'll have public observing from 8-9:30. CFAS will be the core of this phase. This is the first time for this event, and they're not sure how many members of the public will attend. For past Museum-sponsored events they've had as many as 400 people, so the more CFAS members we can get, the better.

I plan to provide two telescopes, and have promised them a laser-guided constellation tour. More scopes will be Very Welcome. It would be good to have a constellation tour every half hour, so extra tour guides would be helpful. The 1000 yard model will be self-lit, but could benefit from a tour guide as well. At the State-Wide Star Party events, having a person greeting, instructing, and directing has been useful. So, whether you have a scope or not, whether you feel confident in your knowledge of the sky or not, please come! You'll be helpful in whatever role you choose.

The 5 "W"s:

What: NC SciFest Astronomy Event
Where: 200 Cabin Lake Park Road, Pink Hill NC 28572
When: 06 April, 6-10 (public 7-9:30)
Why: Public Observing. Outreach to a new geographical region.
Webpage: <http://www.cowanmuseum.org/>

April 6
Stargazing at Cabin Lake
7:00 p.m. - 9:30 p.m.

FREE



Enjoy an evening of stargazing and educational adventures!

- 7:00 p.m. - 8:00 p.m., there will be fun hands-on activities and stories for kids with the Duplin County Library!

- 8:00 p.m. - 9:30 p.m. take a tour of the night sky with the Cape Fear Astronomical Society, where one will see a star cluster, star systems, and galaxies.

Where? Cabin Lake County Park
220 Cabin Lake Rd., Pink Hill, NC 28572
(910) 298-3648, duplincountync.com/cabin-lake Ap

Statewide Star Party: Carolina Beach State Park

Friday, April 12, 7:00 PM – 10:00 PM

<https://www.ncsciencefestival.org/events/statewide-star-party-carolina-beach-state-park-0>

Join Cape Fear Museum, Carolina Beach State Park, Cape Fear Astronomical Society and many other community partners for a FREE, fun-filled evening of stargazing and astronomy-themed activities.

Enjoy laser-guided constellation tours, planetarium shows, telescope viewings, stargazing tips from experts, and many more exciting activities related to this year's theme "The Moon and Beyond".

Our Star Party will happen rain or shine. However, some activities are weather dependent.

See www.capefearmuseum.com/programs/starparty/ for weather and event updates.

Be part of an event that is happening statewide! And bring a flashlight!

February Meeting Notes

The following Notes are heavily based on CFAS Secretary Scott Spike's Meeting Minutes published in full elsewhere. Thanks, Scott!!

The February Meeting was held on Sunday the 10th with 13 members and 1 guest in attendance.

February's Program was 2 videos; one about the Laser Interferometer Gravitational-Wave Observatory (LIGO) and one about demonstrating basic concepts of gravity. (Link to gravity video: <https://youtu.be/MTY1Kje0yLg>)

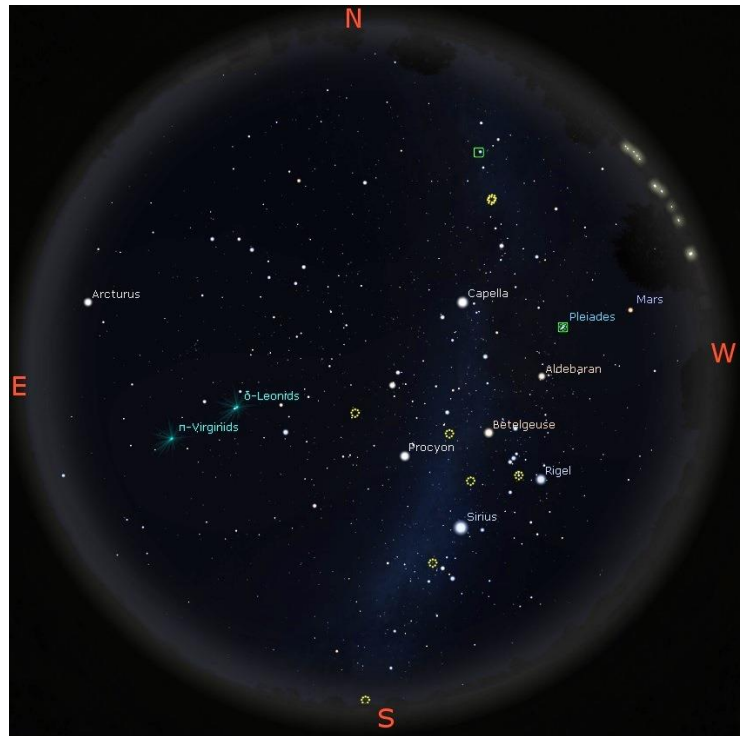


More on Outreach Opportunities by Jon Stewart-Taylor, Vice President:

- ★ See previous page regarding the Cowan Museum at Cabin Lake County Park event. Need volunteers for laser-guided constellation tours and telescope viewing.
- ★ The Blockade Runner is hosting a Spring Full Moon event. Jon responded to request more details and will communicate those to the membership..
- ★ GLOW Academy asked about possible astronomy activities. Jon responded but has not yet received a response; will follow up.
- ★ Cape Fear Fair & Expo runs from Nov. 1-10; planning for Club booth to begin in May.
- ★ Cape Fear Museum is planning a Harry Potter-themed Wizard School, and is looking for volunteers to help with astronomy-related activities.
- ★ Activities are evolving with respect to the Library Telescope program.

Please contact Jon if you have ideas for outreach opportunities.

March Evening Skies



This is a Stellarium screen shot for early March at 9 PM EST (10 PM EDT)

Easily recognized constellations this time of year include **Taurus, Auriga, Gemini, Leo, and Ursa Major**. And there's still time to get a view of **Orion** this winter!

The **Moon's** the Straight Wall (Rupes Recta) is best seen on the nights of March 14th and March 28th.

Moon Phases this month: In March 2019:

New Moon: March 6th
First Quarter: March 14th
Full Moon: March 21st
Last Quarter: March 28th

It's not a good month for telescopic observations of planets, with Mars very distant in the evening skies, Venus small and receding, Mercury past a favorable view, and Saturn and Jupiter at southern locations in their orbits.

Favorite Deep Sky objects – but clear dark skies are recommended, if not required:

Open clusters M38, M36 and B37 in Auriga.

Galaxies M81 & M82 in Ursa Major

The Whirlpool galaxy M51 in Canes Venatici

And rising late in the night, the Leo triplet M65, M66 and NGC 3628 – all fit in a wide field eyepiece using a 2000mm focal length or less telescope

New Funding Announced For LIGO

by Brad Johnson

The historic direct detection of gravitational waves by twin LIGO (Laser Interferometer Gravitational-wave Observatory) detectors in September 2015 generated by two colliding black holes ushered in an era of gravitational-wave astronomy. The subsequent detection of gravitational waves in August 2017 by the LIGO-VIRGO detectors that resulted from the merger of two neutron stars (in a galaxy far, far away...) ushered in a new era in "multi-messenger" astronomy. More than 70 telescopes and observatories were used to study this event across the entire electromagnetic spectrum from gamma rays to radio waves. I find it truly amazing that technology has been developed that can measure these "ripples" in the fabric of space-time over such vast distances. We are talking about detecting "wobbling" that is thousands of times smaller than the nucleus of an atom from sources that are billions of light years away. It has now been announced that the project has been awarded \$20.4 million dollars to fund next-generation improvements. Grants from the U.S., United Kingdom, and Australia will go toward the development of "Advanced LIGO Plus".

"Advanced LIGO" currently in operation is a marvel of modern engineering. This system has detected 10 black hole mergers and one neutron star merger. This amazing technology is used in both US- based LIGO detectors, which are in Hanford, Washington, and Livingston, Louisiana. It is also used in the Virgo detector located near Pisa, Italy. But soon, we will see the use of even more incredible technology put to use in "Advanced LIGO Plus". "Advanced LIGO Plus" should hopefully be up and running in 2024.

Yet another detector in India (LIGO-India) is also expected to come on line in 2024. Improvements will include techniques from quantum mechanics that refine laser light as well as the use of new mirror coating technology. This could increase the volume of deep space included in future surveys by as much as seven times. The rate and strength of detections should increase significantly, increasing our knowledge understanding of these violent events.

Measurements of gravitational waves from neutron star mergers over the next decade may help to resolve disagreements over the rate of expansion (Hubble constant) of the universe. In the past, observations of Cepheid stars and supernovae have been used to measure the Hubble constant. Another method involves measurements of the cosmic background radiation from the early universe. These methods do not give the same values for the expansion rate. Neutron star mergers provide a new independent way to measure the Hubble constant. Studying the gravitational waves emitted by such mergers along with their "light signature" can allow for the calculation of the expansion rate of the universe. These observations enable these events to be used as a "standard siren" to make these all important measurements. It may require up to 50 neutron star mergers to have sufficient data to independently determine an accurate measurement of the Hubble constant. With "Advanced LIGO Plus", observations of neutron star collisions should become more frequent and should eventually provide enough data points to help settle the disagreements over the rate of expansion of the universe.

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 to Karl Adlon, Editor (email kmja79@yahoo.com).

CFAS Officers:

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Associate VP: Billy Kidney
Secretary: Scott Spike
Treasurer: Ben Steelman

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