CAPE FEAR Skies

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

October 2019

Vice President's Report

by Jon Stewart-Taylor

September's astronomy was interrupted by an unwelcome visitor named Dorian, which put a crimp in a number of plans.

Surprisingly, the Carolina Beach State Park observing session wasn't one of them. We not only held the session, it had the highest turnout in months. despite the island being closed just days before. It was gratifying to help people see the skies after a big weather event.

October will have our last official public events until Spring, barring the unexpected . On the 5th we have both the last CBSP event of 2019, but also International Observe the Moon Night at the Cape Fear Museum. Setup for InOMN is at 5, and the event starts at 6. We already have several people going with 'scopes, but more at either event are always welcome.

The Cape Fear Fair appears to have fallen through: i have heard nothing from the Fair organizers, so i have to assume we have no space there.

During late September and early to mid October, Pender County Public Library has a loaner StarLab portable planetarium. Public shows happened on the 27 & 28 of September (sold out!) and more are planned on the 3rd, 5th, 11th, and 12th of October. I'll also be doing dozens of presentations at local schools.

On Monday, 11 November, there is a transit of Mercury. Some members are planning events at their work or other locations. If you're planning one of these, please let us know.

+-+

Never Too Early

Reading the Constitution (the Society's; not the United States') I see that Elections are at the December meeting. Nominations are at the October meeting.

I suspect this 2 month period is unusual as the 3 clubs I know of have a 1 month period. But, if it works, don't mess with it!

There will be one or more openings on the Board, so please give consideration to taking a position and helping make this an even better organization.

And if you have a few minutes, read the Constitution. I was surprised how many people, including Board members, at my previous club had no idea what was in it!

Next CFAS Monthly Meeting

Sun, October 13, **7:00pm** – 9:30pm
212 DeLoach Hall, UNCW Campus

Presentation: Logan Selph on a topic of his choice.

GAStronomy Meeting

Sun, October 13, **5:00pm** – 6:45pm
(Dinner, prior to the Monthly Meeting)
Texas Roadhouse, 230 Eastwood Rd.

Next Events - Public Star Parties

Oct. 5, **7:00pm**-9:45pm, Carolina Beach State Park

Oct 5, **6pm**-8pm, Cape Fear Museum-Observe the Moon

Cape Fear Astro Calendar for October 2019

by Jon Stewart-Taylor

Events marked with ★ are Cape Fear Astro events.

05 First Quarter Moon
★ 05 International Observe the Moon Night, CFM
★ 05 Public Observing, CBSP
08 Draconid Meteor Shower, ZHR 20

★ 13 Cape Fear Astro Monthly Meeting
13 Full Moon – The Hunter's Moon
19 Mercury at Greatest Eastern Elongation

21 Orionids Meteor Shower peak

27 New Moon
28 Uranus at Opposition

+-+

For Sale

I have a Spitz Junior planetarium in excellent working condition in original box for $50 - *Rich Williams,* richwlms@aol.com

Note – Image at left from is from the internet and is for reference only.-*Karl*

Tourist Traps #3: Deep-Sky Objects in Sagittarius and Scutum

By now, you're probably getting tired of hearing that "Tourist Traps" are the objects to view during public observing sessions, and are generally:

- ★ Easy to find, even in light-polluted conditions.
- ★ Able to stand up to a bright background sky.
- ★ Representative of a class of objects.
- ★ Unusual or distinctive trait or appearance.

In this article we'll cover some of the gems of the Milky Way, in Sagittarius and Scutum. They're visible pretty much all summer and into early fall during the observing hours most public sessions keep. Since this is the October issue, better get them while you still can.

M8: The Lagoon nebula; nebula and open cluster in Sagittarius. This is very easy to find, as it's prominently located in the 'steam' rising from the spout of the Teapot. Under dark skies and with good transparency, this is a spectacular object. The nebula is clearly visible, and the dark lane which gives the nebula its name seems to divide the main part of the nebula on one side from the main part of the cluster on the other. As the skies brighten, as is all too common at public sessions, the nebula tends to fade into the background. What you're left with is a small cluster and a faint fuzzy, although people may be able to see the nebula better if you can get them to use averted vision.

Stars are is still forming from the nebula, which contains a mass of gas and dust estimated at about 1000 solar masses. Many of the stars in the cluster are "T-Tauri" stars, which are still emitting a stellar wind and blowing the remnants of gas and dust away. The cluster and nebula about 5000 light years away. The cluster is about 15 light years in diameter, while the nebula is about 50 light years across.

M20: The Triffid nebula in Sagittarius. As with other nebulae in the vicinity, the nebula is made of gas and dust, with the gas energized by young, hot stars which formed out of the nebula. The Triffid is bright, but relatively small. Under good conditions with a 8" or larger scope you may be able to see the 3 dark lanes which give the nebula its name. Under public conditions, you will probably want to use higher magnification than you might normally use on a nebula, for 3 reasons; To make it larger (duh) for the inexperienced observers, to increase the contrast against a moderately light-polluted background sky, and to split the "central" star into two or more components.

The 'central' star, HN40, is located in the tip of one of the three bright patches where the dark lanes intersect. It is thought to be the main 'engine' lighting up the nebula. In a 4" or larger scope you should be able to see two components. In an 8" or larger, you should be able to find 2 more. The distance to the nebula (and therefore its size) is difficult to measure. The current 'average" values are 2500 light years away, which means the nebula is about 25 light years across.

M22: globular cluster in Sagittarius. M22 is one of the most magnificent globular clusters in the skies. Unfortunately for northern hemisphere observers, it suffers from being so low in the sky. It's is fairly easy to resolve into stars with a 3" scope or larger. M22 is a cluster which can take pretty much all the magnification you can put on it. The cluster is slightly flattened along one axis, though it's pretty subtle and will be hard for the general public to see. It's one of the nearest globulars at around 10,000 light years away. The exact size of the cluster is hard to determine because of dust in the arm of the Milky Way between M22 and us, and because of the many foreground and background stars near it. It contains about a half million stars packed into an area only about 50-60 light years across.

M17: the Swan nebula in Sagittarius. This nebula has the dubious distinction of having the most nicknames of any deep-sky object I'm aware of. In addition to the "Swan", it's also called the "Omega", "Checkmark", or "Horseshoe". Finding it under public session conditions may be difficult: there are no bright guide stars in the area. In fact, the nearest star likely to be visible at a public session is 5th magnitude gamma Scu. In thick haze or severe light pollution, your next choice would be mu Sgr at 4th magnitude. Fortunately, if you have a finder, the 6th magnitude nebula should be recognizable as non-stellar.

Under dark conditions, the nebula will have a bright center bar with a hook at one end, set to one side of a misty background glow. Under brighter skies you'll probably only see the bar. There's an obscuring cloud of dust at the hook end. Around 35 of the nearby stars are thought to have formed out of the nebula, but many more may be hidden in the nebula. The bar is about 10 light years long, and with the associated fainter part, the whole nebula is about 40 light years across. It's on the order of 5,000 light years away.

M11: The Wild Duck Cluster: open cluster in Scutum. This may be my favorite open cluster. M11 is a beautiful object in any size instrument, from binoculars on up. It holds up well under magnification, and has a nicely orange-red star in the middle. For years i wondered about the "Wild Duck" name, but then one night the condition were right, and it really did resemble a "V" of ducks or geese in flight.

M11 is reasonably easy to find under most public-session skies, with lambda Aql about 5 degrees away (a finder field of view, or 1 ½ Telrads) and just beyond unaided-eye visibilty. Since it's so bright, it shows up clearly in almost any finder 'scope. M11 is about 6000 light years away, and about 50 light years across. it contains about 1000 stars, with about 100 visible through a scope 4" or larger.

Coming Full Circle

by Brad Johnson

I stepped out early this morning for a preview of the winter night sky. My main observing target was the Orion Nebula high in the southeast. The whole moonless sky was filled with bright Stellar points of light. My gaze traced the Winter Circle asterism. There was blue Rigel in Orion, orange Aldebaran in Taurus, yellow Capella in Auriga, white Caster in Gemini, orange Pollux also in Gemini, yellowish-white Procyon in Canis Minor, and the brightest of all stars, white Sirius in Canis Major.

I started telescopic observing at 5:00 AM. I focused my attention on the delicate nebulosity of the Orion Nebula and the young Trapezium Star Cluster located in its center. I had a great view of these stars also known as Theta-1 Orionis. The brightest of these stars are located within a diameter of 1.5 light-years of each other. These massive stars (15-30 solar masses) produce ultraviolet light that is the primary cause of the glow that illuminates the Nebula.

The four massive stars that form the trapezium asterism are assigned the letters A, B, C, and D. The brightest and most massive of these, Theta-1 Orionis C, is 251,000 times more luminous than our Sun and it is one of the most luminous stars known! It is responsible for generating most of the UV light that is slowly ionizing the Nebula. Theta-1 Orionis C is one of the nearest O-type stars to our solar system.

The image of the magnificent Orion Nebula surrounded by so many stellar points of light in a dark night sky is quite amazing. We now know that many of these stars are hosts to planetary systems. At this point in my observing session, the skyglow of the coming sunrise became apparent. I watched as the light from the sun started to erase the bright stars of the Winter Circle (Winter Hexagon).

I kept the trapezium asterism in the center of my telescopic field. The nebulosity surrounding these stars began to fade, but the trapezium stars remained bright and well defined. Overtime I could only see eight stars in the field of view. These included the four trapezium stars along with the three stars of Theta2 Orionis. These three stars each about an arc-minute from the next, are like a mini Orion's Belt. The star HD 36982 was also visible nearby. It was quite amazing to see these stars in a faint blue sky. By now even Sirius could not overcome the bright light of the dawn sky. The last two stars still visible in my telescopic field were Theta-1 Orionis C and Theta2 Orionis A. They both faded together as my own host star began to rise. The beginning of a new day. I had come full circle.

Planetary Grand Tour

by Brad Johnson

Last night I decided to take advantage of a dark moonless sky to enjoy some early fall observing. Armed with plenty of bug repellent, I was set to begin around 8:00 PM. In the summer of 1977, the twin spacecraft Voyager 1 and Voyager 2 were launched by NASA to take advantage of a favorable planetary alignment. During their epic journey, they explored all the giant planets of the outer solar system, Jupiter, Saturn, Uranus and Neptune. This was the main objective of my observing session.

The Jovian system was first on my list. Orange Antares in Scorpius was visible to Jupiter's lower right. Time is running out for really good telescopic views of this gas giant. Jupiter has shrunk to just 36 arcseconds wide and begins to drop in the Southwest not long after dark. Io was not visible initially, but by 10:00 PM, all four of the Galilean moons were visible along with the Great Red Spot. The closest approach to Jupiter occurred on March 5, 1979 for Voyager 1 and July 9, 1979 for Voyager 2. The images obtained by these twin spacecraft were amazing.

At this point I took a detour to take in all of the sights in and around Scorpius and Sagittarius. I enjoyed some great views of the many star clusters near the center of the Galaxy. So many Messier objects, so little time. These rich star fields were a great backdrop for my planetary grand tour.

My next planetary target was Saturn and it's moon Titan. It was shining to the upper left of Jupiter just above the handle of the Sagittarius Teapot. What an amazing sight. I enjoyed a great telescopic view of this planetary jewel. The closest approach to this ringed planet occurred on November 12, 1980 for Voyager 1 and August 25, 1981 for Voyager 2. More incredible images were obtained during that flyby.

I now was ready to try to "observe" the ice giants. Thanks to the magic of my GoTo telescope mount, I was able to locate Uranus up in the east by 10:30 PM. It seemed fairly isolated with just some faint stars in my telescopic field. Yes, I realize that it is just a featureless tiny blue-green disk, but I observed a planet that is at best 1.6 billion miles from earth! It was the first planet to be discovered using a telescope. William Herschel first described it as a comet in 1781. The closest approach to Uranus occurred on January 24, 1986 by Voyager 2. The spacecraft also found Uranus to be a featureless blue-green disk. That first closeup image is what always come to mind when I think of this distant ice giant.

My last target in the outer solar system was of course Neptune. It is currently at magnitude 7.8, in Aquarius. It was high in the southeast when I finally located it. It is currently over 2.7 billion miles from earth! The star Phi Aquarii (which is a relatively bright star) is in close vicinity of Neptune. They were both visible in my telescopic field using low power. Such a tiny image of a giant planet. On Aug. 25, 1989, the Voyager 2 spacecraft made a close flyby of Neptune, giving us our first close-up of the solar system's eighth planet. It was that iconic image of a blue planet with a very large dark spot. This flyby marked the end of the Voyager mission's Grand Tour of the solar system's four giant planets. Sadly no other spacecraft has visited Neptune since. It was was discovered on September 23, 1846 through the use of mathematics to predict its location! Johann Gottfried Galle and Urbain Jean Joseph Le Verrier were given credit for the discovery.

This also marked the end my own planetary grand tour. I was unsuccessful in my quest to locate Planet Nine. The twin Voyager 1 and 2 spacecraft are now exploring interstellar space. Not to be outdone, I positioned my telescope so that I could observe the Andromeda Galaxy located 2.54 million light-years from my observing location. The light from a trillion suns. A grand tour indeed.

Farewell and Welcome!

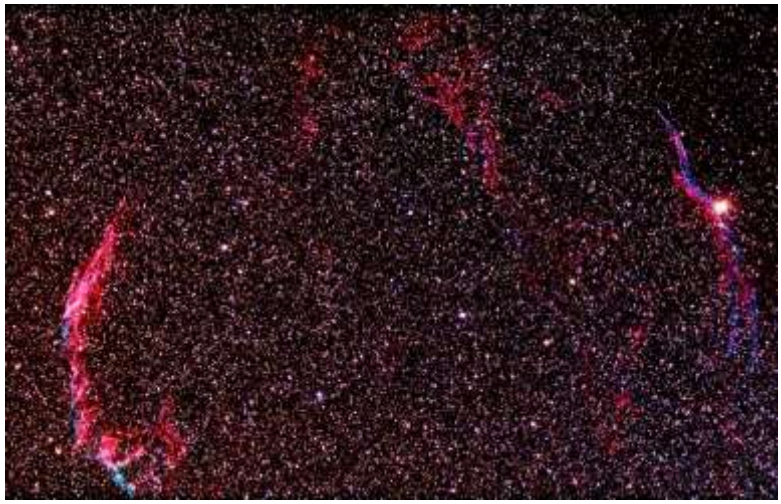
by Karl Adlon

As the Summer Constellations head off into the sunset we bid them “Farewell!” and to the Constellations of Autumn we bid “Welcome!”

Jupiter is also heading toward the Sun – figuratively, of course! Soon it will be lost in the sun’s glare, so take a look now. Saturn is following almost a month behind, a spectacular view given the current view of the tilted rings.

A little digression: back in Illinois at this time of year brought mixed feelings: Happiness that darkness was coming sooner in the evening, allowing some observing to be done before sleep and work the next day. Sadness that the warn evenings were becoming cool, if not cold, and the knowledge that it would get worse - much worse - before it got better.

A little west of directly overhead is the Ring Nebula in Lyra. One day I remembered seeing, when I was in grade school) the first color pictures from the Palomar 200-inch telescope which included the Ring Nebula (far right). I thought the Quad Cities Astronomical Society’s 20-inch scope with a DSLR might come close. And I still thing it might. But the image at right was the best I could do that night. With the scope pointed vertically, I was at the top of a tall ladder and operating the camera controls and focusing were difficult. Certainly today’s DSLRs with higher sensitivity and lower noise would allow better focusing and shorter exposures.



Overhead in early evening is Cygnus, the Swan and under its left (eastern) wing lies the Veil Nebula complex. I took the image at right with a modified Canon 450D and 300mm lens.

On a good night, using a 10” Dobsonian, both the east the west components were visible at low power. A Deep Sky filter worked well to increase contrast and make the nebula easier to see. Later, on a not-so-good night, only the very brightest parts of the nebula were detectible.

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).

CFAS Officers:

Officers

President:	Terry Herrin
Vice-Pres:	Jon Stewart-Taylor
Associate VP	Billy Kidney
Secretary:	Scott Spike
Treasurer:	Ben Steelman

Chairpersons

Web Master:

Contact Us:

You can contact CFAS at info@capefearastro.org

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