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.

August 2022

President's Report

by Jon Stewart-Taylor

August in SE NC isn't considered the best for astronomers. The web site Weatherspark.com has this to say:

> In Wilmington, the average percentage of the sky covered by clouds experiences significant seasonal variation over the course of the year. The clearer part of the year in Wilmington begins around September 13 and lasts for 2.9 months, ending around December 9. [...] The cloudier part of the year begins around December 9 and lasts for 9.1 months, ending around September 13.

They back that up with an Interesting Chart which shows that on August 1st observable conditions happen only about 30% of the time, which rises to about 50% by September 1st.

I guess the moral of this story is that, when conditions allow at this time of year, you need to *carpe noctum* and get your photons while they're available. The club observatory is available 24/7 if you have the time to go.

Roger Blake has made an interesting proposal via the e-mailing list. For club members interested in astro imaging, but who can't afford the equipment, and especially for those tired of waiting for good weather, he's proposing we pool together to buy time on imaging-capable rent-a-scopes in better locations. Members would then download the images captured during these sessions for local processing. Roger suggests that if enough CFAS members join in, the cost will be around $10 per person per session, which is about gas money from Brunswick to Starfields. Contact Roger and Karl for more information.

The Wallace Girl Scout troop plan to attend our scheduled Public Observing Session at Carolina Beach State Park (CBSP) on the 6th of August. I plan to give them a "treasure hunt" list of things to observe in early August. I'll publish it on the e-mailing list for everybody to see, and especially for those who plan to come to the session on the 4th. Between the girls and their families it'll be between 15 and 20 people on top of whoever's at the Park, so an extra telescope or two will be very welcome. Hope to see you there.

The following CBSP public observing is Sep. 3. This is Labor Day weekend. We can expect a good number of public. Please plan on helping out if you can. Thanks! - Karl

Calendar

August 2022

Date – Event – Time

July 30, 1971 – Apollo 15 landed on the Moon at Hadley Rille

04 10:00 UTC - Mercury ½ degree from Regulus; 18 degrees from sun; Evening

04 7 day old Moon, Good date to observe the Moon's Hadley Rille – ED.

05 First Quarter Moon

06 Public Observing, 8:00 PM – starts at sunset; Carolina Beach State Park

12 Full Moon

13 Perseid Meteor Shower; 01:00 UTC; ZHR 100; 1 day past full

14 Saturn at opposition

14 ★ Cape Fear Astro Monthly Meeting ★
CFAS Monthly Meeting - 7:00pm – 9:30pm
212 DeLoach Hall; UNCW
Also simulcast via Zoom

15 Moon and Jupiter; 12:00 UTC; Moon 2 degrees from Jupiter; 134 degrees from sun; morning

15 Moon and Uranus; 15:00 UTC; Moon 1 degree from Uranus; 87 degrees from Sun; Morning

16 20 day old Moon, Good date to observe the Moon's Hadley Rille – ED.

19 Last Quarter Moon

19 Club Observing @ Starfields (the Club Observatory); 7:00 PM; 3rd Quarter Moon

20 Club Observing @ Starfields (the Club Observatory); 7:00 PM; 3rd Quarter Moon

22 Vesta; 07:00 UTC; Asteroid 4 Vesta is at opposition

26 Peach State Stargaze; Georgia

26 Club Observing @ Starfields (the Club Observatory); 7:00 PM; New Moon

27 Club Observing @ Starfields (the Club Observatory); 7:00 PM; New Moon

27 Mercury; 15:00 UTC; mercury at easternmost elongation; 27 deg from Sun; evening

27 New Moon

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

Coming Meeting Planned Programs

August – Astrophotography, Part 2, by George

September – Stars, by Roger

2022 Public Events

Date	Time	Event	Where
Aug 6	30 min before Sunset	Public Observing	CBSP
Sep 3	30 min before Sunset	Public Observing	CBSP
Oct 1	30 min before Sunset	Public Observing	CBSP
Oct 1	TBA	International Observe the Moon Night	CFM
Oct 29	30 min before Sunset	Public Observing	CBSP

Where (Locations):

- ★ CBSP: Carolina Beach State Park
- ★ CFM: Cape Fear Museum

Special Interest Groups (SIGs)

Usual meeting dates – watch emails for exceptions

Phenomena:	First Wednesday
Both Eyes:	Second Tuesday
Astrophotography:	As Requested/Announced
Telescope Usage:	Third Tuesday
New Astronomer:	Third Wednesday
Outreach: Fourth	Tuesday

Two Views of Hadley Rille

by Karl Adlon

The image at left was taken by the crew of Apollo 15.

Their landing site is the where the rille turns from heading northeast to northwest. It is near the mountain with a small crater on its peak.

Phil Harrington's July 2021 Cosmic Challenge: Mons Hadley and Rima Hadley is: https://tinyurl.com/3e422peu and will help you find Hadley's Rille and know what you are seeing.

Below, I stitched several pictures to create the panorama. The view is looking along the rille toward the northwest.

Other pictures show lots of rocks and boulders ar the bottom of the rille.

For each member who sends me an email saying that they read this article, I will make a two dollar donation to the observatory fund.

Dew or Dew Not
(There is no Dry)

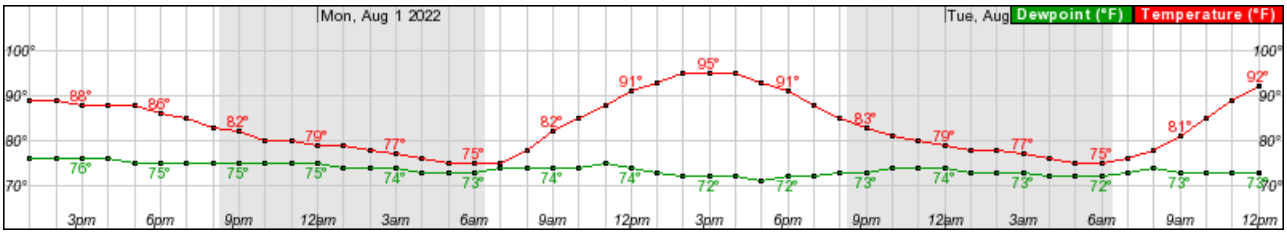
by Jon Stewart-Taylor

If you observe in South-East North Carolina, you'll experience dew. Except when it gets unusually cold: then you'll experience frost. Dew is a fact of life here, because we have very high relative humidity. When the temperature of something drops below the current dew point, moisture will condense out of the air causing dew (or frost) to form on surfaces.

You can see when dew is predicted on the NWS hour-by-hour map:

https://forecast.weather.gov/MapClick.php?lat=34.5943&lon=-78.0944&unit=0&lg=english&FcstType=graphical

When the temperature (red line) drops below the dew point (green line), dew will form on all exposed surfaces.



As astronomers, we have to worry about dew forming on our optics even when "general" dewing is not predicted to occur. The reason for this is that dew forms when surface temperature is below the dew point. Telescope glass usually points to space, and space is very cold. Glass facing space radiates heat into space, and gets colder than the surrounding air. This can cause dew to form on telescope glass.

Something which acts like dew, but isn't quite, is condensation when equipment which is stored in air conditioning is moved into the hot, humid, outdoors. Because the glass is below the dew point, moisture will condense out of the air onto the glass. Prevention is "simple": store the equipment at outside temperature if you can. If you can't, try to prevent the moist air from reaching the glass until it's had time to warm. One thing which can reduce the problem is running a fan so air blows over the exposed glass. That helps evaporate any condensation, and equalizes the temperature difference between the air and glass.

Once condensation forms on glass, it's very difficult to get rid of it. Wiping glass may remove dew for a short time, but runs the risk of damaging optical coatings, especially on eyepieces, SCT corrector plates, and refractor objectives. Not only that, but because the glass remains cold, dew will quickly reform. Electric hair driers can temporarily remove dew, but as the glass cools, the dew will return.

The solution to dew is to prevent it forming in the first place. That means either preventing heat from leaving the glass, or adding new heat into the glass. If you can do both, that's even more effective.

To keep heat from leaving the glass, you have to shield it from space. Not an easy task with a telescope, since the whole point is to use the scope to look at things in space. But, if you're not using an eyepiece, you can keep it in a case. Only bring it out while you're ready to use it. For finder scopes, you can put dew shields on the objectives and caps on the eyepieces while they aren't in use. Refractor and SCT dew shields attach at the aperture end and extend well past the glass to partially shield the exposed glass. Telrad dew shields cover the 45-degree optical window. All these techniques can slow heat loss, but can't completely eliminate dewing during extended observing sessions.

Adding heat into glass compensates for the heat radiating into space. It can keep the glass above the dew point, and prevent dewing ever starting. There are three sources of heat readily available while observing (though not all of them can work on all glass): Body heat, Chemical, and Electrical.

Body heat really only works on things you can fit in pockets such as eyepieces. A “fisherman’s vest” with many pockets can hold your eyepieces and other gear next to your body and keep them above the ambient temperature. Even a shirt or pants pocket will work, though you need to be careful not to get eyepieces dirty, or scratch the glass or if you drop them in the same pocket with your keys.

Chemical heat is easiest to get from commercial hand-warmers, These can be wrapped around eyepieces, and Tetrads and other finders. You can hold them in place with rubber bands or velcro, or sometimes just gravity. But, hand-warmers aren’t usually usable on aperture glass. It would take several warmers to wrap around even a moderate sized refractor objective. It might take a half-dozen or more to go around an SCT to heat the corrector plate.

That’s why many people choose electrical dew control methods. The principle is that running electricity through a resistor makes heat. How much electricity and how much resistance determines how much heat. It’s possible to do math and figure out how much heat is needed, and then fabricate resistors into a heating element for your glass. Most people prefer to use commercially available dew prevention equipment.

Some choose to use their car batteries to power it. But sometimes you can’t get your car near your scope. Also, it’s possible to drain the car battery during a long observing session, making it hard to start the car. Stand-along 12V batteries aren’t that expensive, and many people already have they to run the electronics in their telescopes.

After the power source is decided, i strongly recommend you get a controller. This allows one to use different amounts of power for different diameters of glass and different humidity levels. Most controllers have adjustments to reduce the total amount of power used, making batteries last longer. I’m very fond of the Thousand Oaks Optical controller. It is inexpensive, and has 4 independent fully controllable outputs. There are several other brands which work as well

Finally, you need to get a heating strip for each piece of glass you want to prevent dew from forming on. These come in different lengths for eyepieces, finder scope and refractor objectives, and SCT correctors. Most have velcro at the ends to fasten the strips in place. Telrads are a funny shape, and regular strips don’t fit well. There are some heaters made in “U”-shapes to attach under the visual pane.

What does all this cost? 12V batteries run from $20-$60 depending on how long you want your dew heaters to run. The Thousand Oaks Optical controller is about $110. Dew heater strips start at about $30 for eyepiece heaters, and can reach $80 or more for 16” SCT corrector heaters. In my case, i use one for the 8x50 finder, one for the eyepiece, and one for the Tetrad, so with a battery and a controller it came to a bit over $250. I did it incrementally, starting with just the controller and a Tetrad heater, and added the battery and other strips later.

Get to Know YOUR Astronomical League

www.astroleague.org

The Astronomical League (Astroleague or AL) is one of the largest amateur astronomical organizations in the world. The organization serves to encourage an interest in astronomy (especially amateur astronomy) and promote the science of astronomy by:

- ✓ fostering astronomical education;
- ✓ providing incentives for astronomical observation and research;
- ✓ assisting communication among amateur astronomical societies.

CFAS is one of over 300 member societies affiliated with the Astroleague. Your membership in CFAS allows you take full advantage of this relationship so periodically review the information below to see how the Astroleague can support your astronomical interests and endeavors.

AL Home Page	www.astroleague.org
Observing Programs	https://www.astroleague.org/observing.html
NEW! Night Sky Guides	https://www.astroleague.org/content/navigating-night-sky-guides
NEW! Globular Cluster Observing Challenge (Item 2)	https://www.astroleague.org/content/al-observing-challenge-special-observing-award
Astroleague Store	https://store.astroleague.org/
Past Issues of *Reflector Magazine*	https://www.astroleague.org/reflector/april-2022-reflector-magazine
CFAS ALCor	Hank Lyon, hlyon8448@gmail.com
Reminders and AL News Bites	Couldn't make ALCon 2022 last month? See what you missed here. Maybe make plans for next year? *Your quarterly Reflector magazine will arrive via US Mail unless you specify the digital/email version. Please let your ALCor know your preference.*

The Astroleague Correspondent (or ALCor) is your link between CFAS and the Astroleague. Don't hesitate to contact your ALCor if you need assistance with anything Astroleague related whether its general information or detailed coordination of observing program completions for certification. Check back here each month to see any new links, postings or reminders.

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).

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CFAS Officers:

President:	Jon Stewart-Taylor
Vice-Pres:	Skip Hagers
Associate VP	Karl Adlon
Secretary:	George Pappayliou
Treasurer:	Ben Steelman
ALCor	Hank Lyon

Dues: Dues for 2022 are $25 for Individual and $32 for Family Membership. Students dues are $5 per year.

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Contact Us:

You can contact CFAS at info@capefearastro.org

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