



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.*

December 2023

President's Message

by Ben Steelman

First a reminder that our December meeting will be a party and it won't be at UNCW.

I'll be playing host to the Society's annual Christmas party, beginning at 6 p.m. on Sunday, Dec. 10 at my house at 1610 Chestnut St. in Wilmington. There should be plenty of parking along North 17th Street and on Princess Street, and in a pinch, folks can slip into the St. Paul's Episcopal parking lot a block away.

I will be setting out cold cuts, a veggie tray, some fruit and snacks. If you want to bring an entree or a dessert or beverage, please do so.

The only item of business will be the election of officers for 2024. There are no contested races. Currently, the ballot looks something like this.

President -- Ben Steelman
Vice President -- Karl Adlon
Associate Vice President -- Jon Stewart-Taylor
Secretary -- George Pappayliou
Treasurer -- Bill Cooper

Ballots will be supplied, and if you want to mount a write-in campaign (for president, say?) please do so. In case a quorum doesn't show up, we'll vote again at the January meeting.

It's been an exciting year, and I feel as if the growth of Starfields has revitalized the Society.

Again, there are a lot of people to thank.

Jon thought he was getting a break, stepping down as president. Instead, he's been hustling up meeting programs while dealing with his own challenges, and he's been teaching the rest of us to find our way around the night sky.

Thanks fo Karl for churning out a newsletter every month despite all odds.

Thanks for Terry Herrin for overseeing the Zoom side of our meetings.

Thanks to Hank Lyon, for doing a terrific job as Observatory chair and as our Astronomical League representative. Hank has asked to step down from the observatory job next year, leaving a huge pair of brogans to fill.

Thanks especially to Skip Hager, Steve Hilliard and everyone else who's been working with Mr. Russell Noll on his massive contribution of telescopes, CCD equipment and other astronomical gear -- easily the biggest gift in the Society's four-decade history. All this will give us even more reach in the future.

And thanks to everyone who turned out to help with public viewing sessions.

With this start, 2024 can only be greater.

Keep looking up!

Calendar

December 2023

Date – Event – Time

05 Last Quarter Moon

**08 Club Observing @ Starfields (the Club Observatory);
5:00 PM; 3rd Quarter Moon**

**09 Club Observing @ Starfields (the Club Observatory);
5:00 PM; 3rd Quarter Moon**

10 ★ Cape Fear Astro Monthly Meeting ★

**CFAS Annual Holiday Celebration
Ben Steelman's Home - Wilmington
See Separate Article for Details**

12 New Moon

13 Geminiid Meteor Shower ZHR 150; 2 days before last
quarter Moon

**15 Club Observing @ Starfields (the Club Observatory);
5:00 PM; New Moon**

**16 Club Observing @ Starfields (the Club Observatory);
5:00 PM; New Moon**

19 First Quarter Moon

21 December Solstice; Northern hemisphere = Winter

22 Ursid Meteor Shower; ZHR 10; 1 day before new

28 Full Moon

Astro phenomena from:

<https://www.universalworkshop.com/astronomical-calendar-any-year/>

2024 Public Events

Please plan to join our 2024 public events!

The more members we have, the more enjoyable the event becomes.

**April 12: 7 - 10pm - STAR PARTY 2024;
by the Cape Fear Museum; CBSP
(replaces State Wide Star Party)
4.6 day old crescent Moon**

**Sept. 14 - International Observe the
Moon Night**

CBSP = Carolina Beach State Park

2023 Monthly Meeting Dates and Presentation

**December 10, 2023 HOLIDAY
CELEBRATION (and annual
meeting) at
Ben Steelman's,
1610 Chestnut St., Wilmington, NC**

**PRESENTATION:
Cape Fear Astro at 40 Years!**

Special Interest Groups (SIGs)

Usual meeting dates – watch emails for exceptions

Phenomena:	First Wednesday
Both Eyes:	Second Tuesday
Telescope Usage:	Third Tuesday
New Astronomer:	Third Wednesday
Outreach:	Fourth Tuesday
Astrophotography	contact Karl with a request for a Subject

CFAS Annual Holiday Celebration

by Ben Steelman



Time: 6 P.M.

Date: Sunday, December 10

Location: 1610 Chestnut St. in Wilmington

(Reminder: This is for Members and their Guests.)

I'll be playing host to the Society's annual Christmas party.

There should be plenty of parking along North 17th Street and on Princess Street, and in a pinch, folks can slip into the St. Paul's Episcopal parking lot a block away. I will be setting out cold cuts, a veggie tray, some fruit and snacks.

If you want to bring an entree or a dessert or a beverage, please do so.



AL Herschel 400 Observing Program

by Jon Stewart-Taylor

I'd been aware of the Astronomical League's Herschel 400 Observing Program (H400) for nearly 30 years. After finishing the Telescopic Messier program, I was looking for a "next step" observing program. The H400 was, well, daunting. The reason was right in the title: 400 objects. It required almost 4 times as many as the Messier program, which had taken me over two years to finish. Finishing the H400 would probably take a decade.

Over the next 25 years I sort of nibbled at it, visiting NGC objects which sounded interesting as I heard about them from other observers, or read about them in articles. Most of them weren't as exciting as the Messiers. Some suffered from light pollution, some were hard to find with no convenient guide stars, and a lot were small and dim. So, the idea of doing the H400 languished.

This fall we acquired a ZWO Seestar S50, one of the second generation automated imaging-only telescopes. It automagically finds targets, has an autofocus feature, an automatically selected light pollution filter for nebulae, and internally stacks 10-second exposures to continuously improve an image which is exported wirelessly to a cell phone or tablet. Sounded too good to be true, especially for \$400.

When I tried it out, it performed basically as advertised. The images it generated were astonishing, especially given they required only a few minutes for at least "souvenir quality" images.


For example, M11:



and M33:

It dawned on me that the S50 would be an ideal instrument to do the H400. The rules allow imaging, and the requirements for doing so aren't onerous. So far I've done three sessions for the H400, and so far have over 30 objects. If I can do 10 H400 objects per week, I can finish in about a year. Here's a sample of the web page I'm building as I go; the entry for 7789 (Caroline's Rose):



7789	2023/11/07	22:29	Many faint stars swarm over a wide area. Dark spaces give the impression of petals for Caroline's Rose	3 frames	
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And, beyond that, it's letting me quickly sample the objects to find out which ones I like, and which are worth tracking down in a 10" or 18" dob, and which are just "catch 'em all" objects. Among my favorites so far are NGC 253 (the Sculptor galaxy):

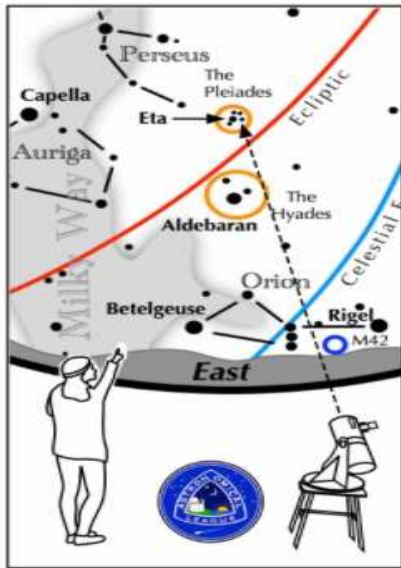


and NGC 7044, a tiny yellow starfish:

I'm looking forward to working on this, and seeing what else has been lurking out there waiting for me to see it. I'll try to post occasional updates.



ASTRONOMICAL LEAGUE Double Star Activity



Other Suns: Eta Tauri (Alcyone)

How to find Eta Tauri on a December evening

Face east. Look for the Pleiades star cluster. Eta Tauri is the cluster's brightest member. It is a quadruple star.

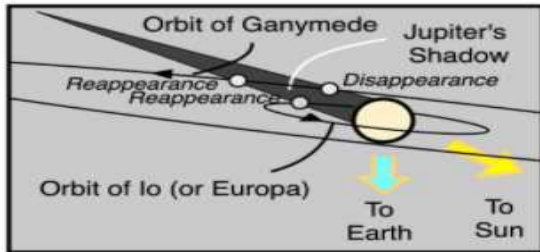
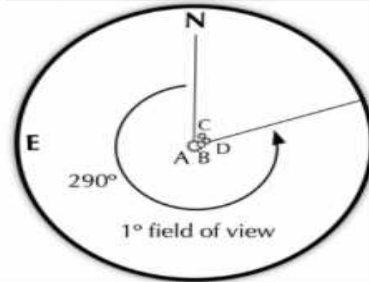
Eta Tauri

A-B separation: 118 sec
 A magnitude: 2.8
 B magnitude: 6.3
 Position Angle: 290°

A-C separation: 182 sec
 C magnitude: 8.2
 Position Angle: 313°

A-D separation: 192 sec
 D magnitude: 8.7
 Position Angle: 296°

Suggested magnification: >20x
 Suggested aperture: >3 inches



Galilean moon emergence

(Elapsed time varies with moon)

Elapsed time: 30 sec.

Elapsed time: 2 min.

Elapsed time: 4 min.



An "Oh! Wow!" moment through your telescope

Imagine seeing a world emerge in the darkness, taking several minutes to fully appear. Such a body is Io, Europa, or Ganymede on multiple occasions this December.

Aim a telescope at Jupiter shining in the south a few minutes before the event is predicted to take place. Look away from the planet's bright disk, about one planet diameter from its eastern edge. At the designated time, a faint speck can be discerned. As the seconds pass, that speck grows brighter and brighter.

This is one of the large Galilean moons, slowly leaving Jupiter's shadow while orbiting the giant planet. December is a good month this year to witness an event like this in the evening sky, because Jupiter's shadow angles to the east of the planet, putting the emerging moon relatively far from the planet's glare. Each moon takes a different time to fully emerge, because of its diameter and of its orbital velocity around the planet.

Note: December 12 and 19 have Ganymede disappearing into the shadow and reappearing. December 21 and 28 have Io and Europa both disappearing near the same time.

Make sure that Jupiter is sufficiently above the horizon at your location and that the evening twilight has sufficiently darkened. Begin viewing a few minutes before the listed times.

Event commencement: (all times CST)

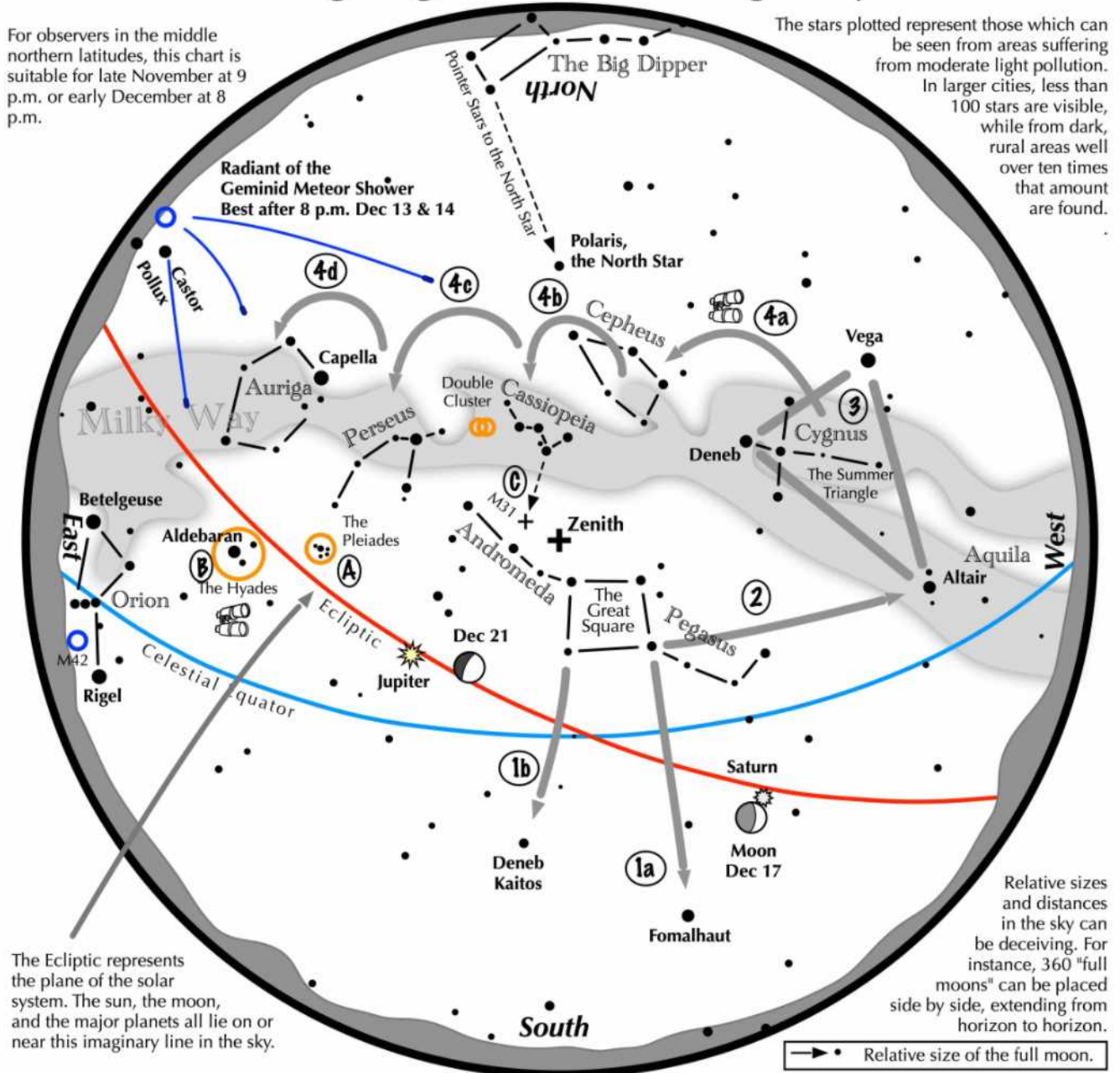
Io	Dec 5, 11:34 pm
Io	Dec 7, 6:04 pm
Ganymede	Dec 12, disappearance 5:41 pm, reappearance 7:48 pm
Io	Dec 13, 1:30 am
Europa	Dec 14, 6:24 pm
Io	Dec 14, 7:58 pm
Ganymede	Dec 19, disappearance 9:45 pm, reappearance 11:49 pm
Europa	Dec 21, 9:03 pm
Io	Dec 21, 9:53 pm
Europa	Dec 28, 11:42 pm
Io	Dec 28, 11:48 pm
Io	Dec 30, 6:18 pm

Use a "high" magnification!

Navigating the December Night Sky

For observers in the middle northern latitudes, this chart is suitable for late November at 9 p.m. or early December at 8 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

Navigating the December night sky: Simply start with what you know or with what you can easily find.

- 1 Face south. Almost overhead is the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend an imaginary line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the southwest. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second bright star in the south.
- 2 Draw another line, this time westward following the southern edge of the Square. It strikes Altair, part of the "Summer Triangle."
- 3 Locate Vega and Deneb, the other two stars of the "Summer Triangle." Vega is its brightest member while Deneb sits in the middle of the Milky Way.
- 4 Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, to Perseus, and finally to Auriga with its bright star Capella.

Binocular Highlights

A and B: Examine the stars of the Pleiades and Hyades, two naked eye star clusters.

C: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.

D: Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas.



Get to Know YOUR Astronomical League



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.

Astroleague Home Page	www.astroleague.org
AL Observing Programs <i>(Alphabetical Listing)</i>	https://www.astroleague.org/alphabeticobserving/
Celestial Savings <i>(Vendor Discount Program)</i>	https://www.astroleague.org/celestial-savings/
Astroleague Store <i>(Christmas Gifts and Ideas?)</i>	https://store.astroleague.org/
Night Sky Tools	https://www.astroleague.org/navigating-the-night-sky-guides/
Current and Past Issues of <i>Reflector Magazine</i>	https://www.astroleague.org/reflector/
Additional AL News, Information and Reminders	<p>Click HERE for the Astroleague News Page.</p> <p>Any gifts and goodies purchased from the Astroleague store that are needed before Christmas need to be ORDERED BY DECEMBER 6th.</p> <p>Contact Hank Lyon, hlyon8448@gmail.com, for any changes to your Reflector delivery preferences (US Mail or Email).</p>

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 each month to see any new links, postings or reminders.**

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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.

CFAS Officers:

President: Ben Steelman
 Vice-Pres: Brendan O'Byrne
 Associate VP: Jon Stewart-Taylor
 Secretary: George Pappayliou
 Treasurer: Bill Cooper
 ALCor: Hank Lyon

Dues: Dues for 2023 are \$25 for Individual and \$32 for Family Membership. Students dues are \$5 per year.

Mail to :CFAS, P.O. Box 7685, Wilmington, NC 28406

Contact Us:

You can contact CFAS at info@capefearastro.org

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