Charlotte Amateur Astronomers Club
www.charlotteastronomers.org

CAAC February 2023 Meeting

Next Meeting: Friday February 17th, 2023 **Time:** 7pm ET	**Place:** *Myers Park Baptist Church* *Education Building – Shalom Hall (Basement)* **Address:** 1900 Queens Road Charlotte, NC 28207

From the Earth to the Moons: Field Exploration and Life Detection

How does one go about finding life on other planets? How do we even know where to look, or better yet: what to look for? Exciting mission designs like kinetic penetrators (think interplanetary bunker busters) to autonomous harpoon-wielding snake-like robots open up novel possibilities for planetary exploration. With these systems we can force our way beneath surfaces, wriggle down tight chasms, and truly boldly go where no rover has gone before. On Earth we test instruments these unique platforms might carry with them in environments of fire, ice, salt, and desiccation. Field vignettes from the volcanoes of Iceland to arid hypersaline lakes in Western Australia will be presented. Put on your explorer's cap and bring your questions to this presentation which promises to be a ride from Earth's extremes to Enceladus and Europa, the moons of Jupiter and Saturn!

Speaker: Dr. Amanda Stockton

Amanda Stockton is an Associate Professor in Chemistry and Biochemistry at Georgia Tech. Prior to this appointment, she worked at the Jet Propulsion Laboratory, California Institute of Technology. Her PhD work was with Richard Mathies at UC Berkeley after she earned a Master's degree in chemistry from Brown University and Bachelor's degrees in aerospace engineering and chemistry from the Massachusetts Institute of Technology. The Stockton group's research focuses on the development of ultra-highly sensitive analytical methods and portable equipment using microfabricated capillary electrophoresis with laser-induced fluorescence detection (μCE-LIF) and other microfluidic technologies.

Dr. Stockton has extensive experience in the use of μCE-LIF to detect very low levels (sub-pptr) of organic molecules in astrobiologically relevant samples. Her work also includes a significant field-work component, including repeated expeditions to volcanic regions of Iceland as a Martian analogue.

From the President:

Dear Friends,

As our club continues to grow to record levels, I would like to encourage (remind) all members (old and new) to partake in the facilities at GHRO. As a reminder, the club runs monthly Star Parties and training events to which everyone is invited. We also have free “loaner” telescopes for members.

The Club will have several events coming up including the annual election of the Club’s Board of Directors, Southern Star, and outreach opportunities. More information on these topics will be forthcoming however please reach out if you are interested in learning more.

Please make sure you have signed up for announcements via the Night Sky Network. We often send out announcements via the NSN and you don’t want to miss out on CAAC opportunities.!

Clear Skies,

Joel Levy
CAAC President

Secretary's Report:

1. Please see below for the 2023 CAAC annual membership options:
   - Annual individual/family membership, which includes access to the CAAC dark sky **observatory** (GHRO) - $60.00
   - Dues are collected at the October meeting and are pro-rated for members joining in January or later.
   - Students up to 18 years old - $15.00 per year.
   - Private Observing Pads - additional $25.00 per year.
     Optional fee for members with private concrete observing pads at the club's dark sky location. Contact the Observatory Director for additional information.

   Membership Applications are available through the CAAC Treasurer at monthly meetings.
   Click https://charlotte-amateur-astronomers-club-2.square.site/ to navigate to the CAAC online store. Then select "CAAC Membership" to add it to your cart

2. We are excited to announce the launch of the new CAAC website, https://charlotteastronomers.org/! The CAAC website has been updated to provide better service to our members with easier navigation, up to date announcements and postings, and accessible communication.
   Please explore and enjoy your new CAAC website.

3. If you are a former CAAC member and have not been keeping up with your membership dues, firstly please come back! We'd love to reconnect you with the love of astronomy through our club, use of GHRO observatory, and the camaraderie of our members.

   Please also remember to return your badges on the table near the exit at the end of the meeting before you leave! Doing this will significantly reduce the chances of badges getting lost and reduce the amount of time (and cost) of having to re-create your name tag if it is lost. Thank you!

4. Register with the Night Sky Network! It is imperative that all members of the CAAC join the Night Sky Network (NSN). Many of the club's outreach activities are managed by the NSN, as well as club communications (newsletters, event notifications, general email). The NSN is a wonderful tool specifically designed for amateur astronomy clubs like ours. Membership allows you to contact other members via email, and receive last minute updates for outreach events via text message:
   http://nightsky.jpl.nasa.gov/club-apply.cfm?Club_ID=1468&ApplicantType=Member Pre-Monthly

5. Sign up for CAAC Slack / chat!

   Chat with fellow astronomy and astrophotography enthusiasts on our discussion group. This is a free service, we are using the basic plan.

See who's going to GHRO, ask questions, or just be sociable. You can access via webpage or native applications on all major platforms and mobile phones.

If you're not familiar with it, Slack is a social / chat platform-- kind of like a combination of texting and forums. We have several dedicated group channels, such as GHRO-trips, astro-imaging, and miscellaneous-equipment-talk, just to name a few. It also offers file/image sharing and direct messaging to individual users or groups of users.

Some frequently asked questions:

What does it cost?

- Nothing. Nothing for you, nothing for the club -- We're on the free tier

How do I sign up?

- Visit this link: http://slack.south40astro.com or email caac-slack@jamieandamy.com if you run into issues with the link, and Jamie

How do I use it?

- For the best experience, there are native clients for most major platforms (desktop and mobile), as well as a web interface
- Just search your respective app store for "Slack", or go to https://slack.com/downloads/

Does this replace the Night Sky Network?

- No-- the NSN is still the official information delivery system, though we may mirror the notifications in the Slack "announcements" channel

How does it differ from NSN?

- NSN is a push-only system. You create an announcement ("Hey, I am going to GHRO tonight"), but don't really get feedback. With the Slack team, people can respond and coordinate.

When you sign up you'll be added to some "channels" automatically, and likely see some other suggestions as well.

Sign up, introduce yourself, talk to your peers, tell your stories, ask your questions, and share your wisdom!

Again, if you run into issues signing up, email Jamie at caac-slack@jamieandamy.com and I will help you get on the team.

Clear Skies,

My Do
CAAC Secretary

CAAC Treasurer's Report as of 1/31/2023

Operating Fund

Purpose: Enable the CAAC to pursue our non-profit goals, maintain our facilities, and run our programs.

*Funds are acquired through ongoing receipts of dues, fees, and annual Southern Star income (or expense).

*Funds are expended to meet operating obligations of the club.

1	**Operating Fund Balance: 12/31/2022**	**$8,982.80**
2	**Income:**	
	Dues and Fees	$1,564.15
	Auction Proceeds	$210.00
3	**Expenses:**	
	Refunds/overpayments	$199.35
	Zoom	$14.99
	GHRO Utilities (alarm, elec, internet)	$440.90
	Service fee to accept credit cards	$42.61
4	**Operating Fund Balance: 1/31/2023**	**$10,059.10**

Non-Operating Funds

Purpose: Administer gifts and donations for designated use.

1	**Non-Operating Fund Balance: 12/31/2022**	
	Scholarship Fund	**$6,706.87**
	CAAC Self Insurance Fund	**$20,000.00**
	Contingency Fund	**$7,373.24**
2	**Income:**	
	Interest	$4.34
3	**Expenses or Transfers:**	
		$0.00
4	**Non-Operating Funds Balance: 1/31/2023**	
	Scholarship Fund	**$6,706.87**
	CAAC Self Insurance Fund	**$20,000.00**
	Contingency Fund	**$7,377.58**

Scott Goforth
CAAC Treasurer

34th Annual Astronomy Convention

REGISTRATION BEGINS IN FEBRUARY

Exceptional Key Speakers

Stay at WildAcres

3 Nights & 4 Days

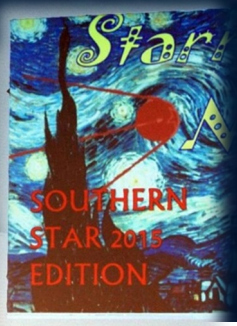
Includes Meals & Reception

WILDACRES RETREAT
NC
LITTLE SWITZERLAND

Star Parties & Solar Viewing

Social Events & Door Prizes

optional Nature Hike & Artisan Visit



FOR MORE INFO OR TO VOLUNTEER: southernstar@charlotteastronomers.org **Jodie Funderburk 410-303-2301**

News from GHRO

1. The next star party is Saturday, February 18 beginning at dusk. Please come down to GHRO and enjoy a crisp winter evening under clear, dark skies (finger's crossed).

2. There will be a home school group coming to GHRO on Friday night, February 24 beginning at 6PM in the classroom before moving to the telescopes. There should be a group of about 30 people, students and adults. I could use a couple of volunteers to help with the telescopes and parking, please e-mail me (jegaiser@gmail.com) if you can help.

3. Telescope training for new members (and those wishing to get a review) will be held on Saturday, February 25 beginning at 5:00.

4. This training is required for all new member that wish to use the facilities at GHRO. The training will take place even if it is cloudy, it will be cancelled only if it is actively raining or snowing. If it's clear, you can practice your newfound skills immediately after the training.

5. The complete GHRO calendar for 2023 is below.

2023 Star Party and Training Schedule

GHRO

	Star Party Date	Moon Illumination on Star Party date	Training Date	Training start time (PM)
January	21	1%	28	4:30
February	18	5%	25	5:00
March	18	15% waning	25	6:00
April	22	7%	15	6:00
May	20	1%	13	6:30
June	17	1%	24	6:30
Junly	15	5%	22	6:30
August	19	9% waxing	26	6:30
September	16	2%	23	5:30
October	14	1%	21	5:00
November	11	4%	18	4:30
December	9	14% waning	No training in December	

6. Don't forget that the current sky conditions and weather and the Clear Sky Clock is found at the bottom of our home page…www.charlotteastronomers.org.

7. The new telescope storage building, near the all members pad is available for rent. The fee is $10/month for a 3'x3' spot inside, with a 6 month minimum commitment; there are 9 spots

available. Users are encouraged to have their contents insured, as CAAC will not be insuring the contents of the building. Please see Jim Gaiser or Rick Bassham if you have any questions.

8. There is about to be new construction going on near the solar observatory, so please be careful in that area. Details on the new construction will be shared in the March newsletter.

GHRO Information

GHRO is located at 1427 Bloomwood Drive, Lancaster, SC. (some GPS show city as Pageland). Gravel road leading to the observatory is located 5.22 miles east of the "522 Grill" on Taxahaw, Rd.

Facebook FAQ
https://www.facebook.com/CharlotteAstronomers/ scroll down to NOTES, then Frequently Asked Questions page for more information about GHRO. Be sure to share your astronomy photos and observing tips.

Night Sky Network -- "Heading to GHRO"
For updates on GHRO, be sure to join the https://nightsky.jpl.nasa.gov/index.cfm "Heading to GHRO" message group.

Jim Gaiser, Director GHRO.

As always, we care about the safety and security of all visitors to our observing facility, the GHRO. To keep us all mindful for the need to keep alert while visiting the observatory, we provide the following reminder. Please share this with your family and any visitors who may join you at the observatory. Thank you.

*** WARNING ***

This facility (GHRO) and adjoining area may contain uneven terrain, dangerous wildlife, low light conditions, and dangerous man-made obstacles.

By using this facility, users assume the risk of personal injury, and loss or damage to personal property. All persons should use extreme caution at all times.

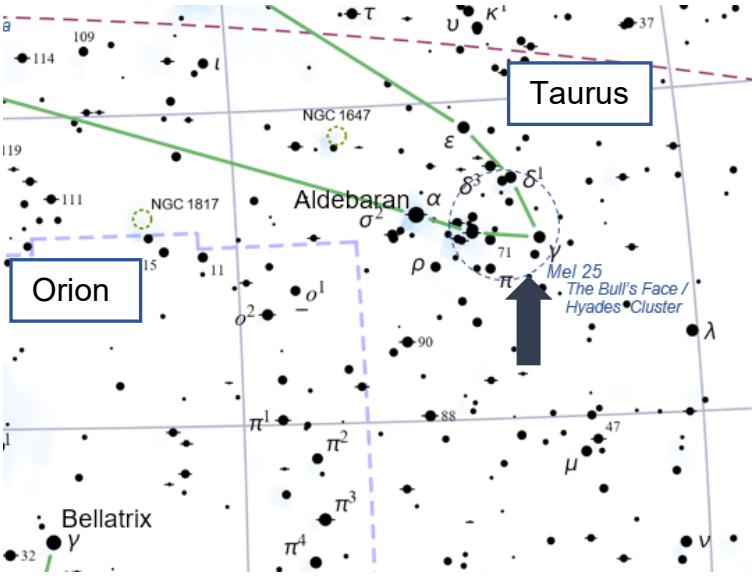
Users of this facility agree to hold harmless the Charlotte Amateur Astronomers Club, its Directors, and its members for any and all injuries sustained while participating in club activities or using this facility.

CAAC Outreach Opportunities

To be announced at the February 17th meeting.

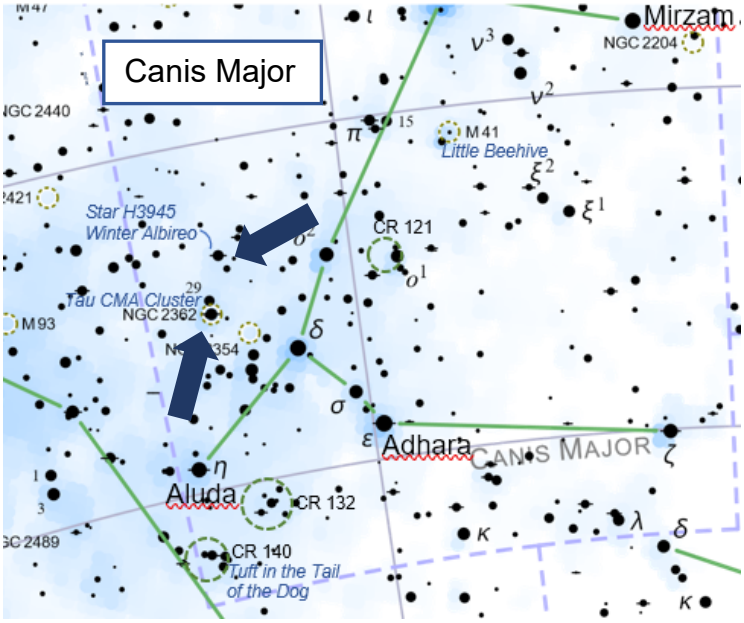
February Sky Challenge

Are you looking for something to discover in the night sky? Try these with a modest size telescope, with some patience and persistence! Or come down to the GHRO and get a really fine look! This month, two beautiful open clusters and a colorful Winter star!



The Hyades Star Cluster (The Bull's Face or **Mel 25)** is the nearest open cluster and one of the best-studied star clusters. Located about 153 light-years away from the Sun, it consists of a roughly spherical group of hundreds of stars sharing the same age, place of origin, chemical characteristics, and motion through space.

The five brightest member stars of the Hyades have consumed the hydrogen fuel at their cores and are now evolving into giant stars. The age of the Hyades is estimated to be about 625 million years. The core of the cluster, where stars are the most densely packed, has a radius of 8.8 light-years



NGC 2362 is an open cluster in the constellation Canis Major. It was discovered by Giovanni Batista Hodierna before 1654. Its brightest star is Tau Canis Majoris, and therefore it is sometimes called the **Tau Canis Majoris Cluster**. NGC 2362 has a distance of 1.48 kpc and is a relatively young 4–5 million years in age. It is a massive open cluster, with more than 500 solar masses.

h 3945 in Canis Major is arguably the most colorful double star in the winter sky and, in fact, has been nick-named the **"Winter Albireo."** A bright, wide, and easy pair with deep colors. The stars are bright citrus orange and royal blue; these colors are seen vividly and in strong contrast. EXTRA: Also take a peek at **CR 132** and **CR 140**, just south of NGC 2362.

Acknowledgements:

Wikipedia and Skyscrapers.org for excerpts.
Mag Star 7 Star Atlas Project © 2005 Andrew L. Johnson for star maps (clipped)
Edited by Mark Hoecker

What's Up in the Sky?

Highly Recommended Download and print a good *FREE* star map (including interesting objects to look for) monthly from:

Skymap http://www.skymaps.com/downloads.html

You'll also find a good monthly sky map in each issue of *Sky & Telescope* or *Astronomy* magazines.

New to the Night Sky?

Are you puzzled by folks in the club who point up in the sky and say "There's Gemini... and you can see Leo rising over there...and doesn't Regulus look clear tonight"? Are you trying to figure out where those darn constellations are? Those large star atlases are pretty intimidating… confusing… and expensive.

A good starting point could be called, *My First Star Atlas*…. but in reality it is 4 simple but very helpful FREE star chart pages from the Stephen F. Austin State University – called ***SFA Star Charts***. Pages 2 & 3 show you about 90% of everything you need to get started. There are even a couple pages that explain how to use a star chart. Clear and straight-forward.

Go to this link and print out the pdf file on the largest paper you have available, though standard letter paper is fine:

http://observe.phy.sfasu.edu/SFAStarCharts/SFAStarChartsAll.pdf

While these charts do not show the myriad of deep sky objects, they DO show the constellations and brightest stars – a good introduction to the night sky!
Happy Observing!

An *ENHANCED* Star Atlas – FREE!

Our CAAC member, Mark Hoecker, has used the *Mag 7 Star Atlas – Color Milky Way version* (available on the internet) and added some enhancements including:

- A star map index to quickly identify the individual star chart you are looking for.
- Blue directional arrows at the edge of each chart guiding you to the adjacent chart. Also large page numerals were added in the lower right corner, helpful when thumbing through the charts.
- Finally, he manually added common star names and a selection of deep sky object names to the star charts, helpful in finding your way around the sky.

Such enhancements are allowed under the Creative Commons License by Andrew L. Johnson, author of the original charts.

SUGGESTION: While printing at the largest paper size you have available is helpful, a great alternative if you have a "letter size" color printer with a manual auxiliary feed slot, is to print on "legal size" (8½ x 14-inch) heavy paper or even "card stock". You could

also punch holes and place in a legal-size report cover available at office supply stores. You would then have a wonderful star atlas to help you through the night skies!

If you have access to a color printer that can print on 11 x 17-inch paper (or card stock), you can print a magnificent copy whose readability will rival that of very nice, commercially available atlases.

To download your ***Mag-7 Star Atlas Milky Way version – ENHANCED***, go to the CAAC website and on the top menu bar, hover your cursor over “Resources” then select “Mag-7 Star Atlas”. Follow the directions to download.
Happy Observing!

Endowment Corner

Gifts for the Present:

Cash:

A gift of cash is simple, has immediate impact, and provides tax savings due to the charitable deduction that you can receive. The easiest way to make an outright gift is to write a check to the CAAC Stewardship Foundation.

To make a contribution or learn more, please visit https://charlotteastronomers.org/endowment/

Ken Steiner, Chair CAAC Stewardship Foundation

CAAC CONTACTS

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