



Charlotte Amateur Astronomers Club  
[www.charlotteastronomers.org](http://www.charlotteastronomers.org)

## CAAC April 2022 Meeting

<p><b><u>Next Meeting:</u></b> Friday April 15th, 2022</p> <p><b><u>Time:</u></b> 7pm ET</p>	<p><b><u>Place:</u></b> <i>Virtual Meeting - From the comfort of your home</i></p> <p><b><u>Address:</u></b> Zoom web conference link (See newsletter info below)</p>
--	---

## Going to the Moon New Challenges of Public - Private Aerospace

Dr. Will Coogan will be speaking about the challenges of developing an aerospace program and going to the moon from the perspective of a private aerospace company. He will discuss his experiences in developing FireFly's Blue Ghost lunar program and the intricacies of engineering new lunar technologies.

Speaker: Dr. Will Coogan

Dr. Will Coogan is Chief Engineer for Firefly Aerospace's Blue Ghost lunar lander. The lander program is currently working to support a \$97MM NASA contract to deliver 10 science payloads to the lunar surface, and then to operate the payloads through a lunar day and into the lunar night. In his four years at Firefly, Will has also worked on the company's orbital and launch vehicle programs. He holds a PhD in Mechanical & Aerospace Engineering from Princeton University, as well as five other degrees including music and physics. His primary research focus in academia was high-power plasma propulsion for spacecraft. Prior to his work in aerospace, he has held positions as a recording engineer, a logistics agent, and as owner of a carpentry company.



## CAAC Virtual Meeting Login Instructions

1. If you have not used Zoom before go to Zoom.com and download the Zoom program onto your computer.
2. **To Log In:**

Click on the meeting link below:

<https://us06web.zoom.us/j/85169643345?pwd=eEhMcGJpTXpPRWlrSmhCbkhNa3dMdz09>

If needed Meeting ID: **851 6964 3345**

Passcode: **2022**

This manual “log in” rather than invitation to everyone prevents all the emails showing up on the invite. This is a security issue for your privacy.

3. When on the Zoom screen to prevent chaos and overloading bandwidth:
  - a. Mute your microphone-icon lower left of screen
  - b. Mute Video icon on the lower left of screen.
  - c. You will be able to see and hear leaders of the meeting when they are speaking
4. If you wish to ask questions of the speaker after the main presentation:
  - a. Submit on the chat feature which is at the bottom of the screen. You will then type out your question and hit enter.
5. Excellent Zoom tutorials are available on You Tube:
  - a. <https://www.youtube.com/user/ZoomMeetings>

---

## **From the President:**

Greetings Friends,

Much to my surprise, the first quarter of the year is over. As discussed last month, we are preparing for the return to in-person meetings and are tentatively planning to meet in-person for the May meeting. Please watch for additional announcements - we look forward to seeing you soon. As a reminder, while masks are not required, our hosts at the MBPC are requesting that attendees be fully vaccinated. While we will not require members to provide proof of their vaccination status, we request that our members honor our host's request.

At our meeting next month, members will vote on the slate of candidates for CAAC leadership. Several club members will be either taking on new responsibilities or rolling off the Board. We are deeply thankful for all those members who continue to serve, have served, and are taking on new roles. A formal ballot will be sent out listing the names and biographies of candidates in the coming weeks.

As always, please reach out with your questions and be sure to use your GHRO facilities.

Respectfully,

Joel Levy  
CAAC President

## CAAC Treasurer's Report as of 3/31/2022

### 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	<b>Operating Fund Balance: 02/28/2022</b>	<b>\$11,567.28</b>
2	<b>Income:</b> Dues and Fees \$300.00 Donation \$135.00 GHRO Infr. Improv. Expenses: X-fer \$1,584.22  <b>Expenses:</b> Refund on overpayments \$67.67 Annual Director's Insurance \$309.00 GHRO Utilities (alarm, elec, internet) \$534.90 Gift cards for meeting presenters \$500.00 GHRO Facility \$0.00 GHRO Infrastructure Improvements \$1,584.22 Service fee to accept credit cards \$14.43	
3	<b>Operating Fund Balance: 03/31/2022</b>	<b>\$10,576.28</b>

### Non-Operating Funds

**Purpose: Administer gifts and donations for designated use.**

1	<b>Non-Operating Fund Balance: 02/28/2022</b> Scholarship Fund \$1,489.36 CAAC Self Insurance Fund \$20,000.00 Contingency Fund \$7,364.79 GHRO Infrastructure Improvement \$6,083.76	
2	<b>Income:</b> Interest \$0.30	
3	<b>Expenses or Transfers:</b> GHRO Infr. Improv. Expenses \$1,584.22	
4	<b>Non-Operating Funds Balance: 03/31/2022</b> Scholarship Fund \$1,489.36 CAAC Self Insurance Fund \$20,000.00 Contingency Fund \$7,365.09 GHRO Infrastructure Improvement \$4,499.54	

---

### **CAAC Website Modernization Committee**

CAAC is excited to announce the formation of the CAAC Website Modernization Committee. Mark Hoecker is appointed Chairman of the committee and will be assisted by Neil Easden, Steve Roguish, and Tom Clarkson as committee members.

The charge of the CAAC Website Modernization Committee is to review the current Charlotte Amateur Astronomers Club website (<http://www.charlotteastronomers.org/>) and provide guidance to the Board as to suggested website alterations. In addition, suggested alterations should consider the integration of highly trafficked social media websites including, but not limited to, Facebook, YouTube, TickToK and Instagram.

The CAAC Board requests the CAAC Website Modernization Committee submit an initial report on their findings and recommendations no later than August 12, 2022.

Thank you Mark, Neil, Steve, and Tom.

---

## News from GHRO

1. The new telescope storage building, near the all members pad, is ready for use. The board has approved a fee of \$10/month for a 3'x3' spot inside, with a 6 month minimum commitment. There are 10 spots available. The building will be on the general alarm system by the end of the month and will have a surveillance camera mounted inside as well. 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.
2. One more time, many thanks to everyone that helped with the Boy Scouts and the Star Party. Here's a recent shout out from one of our new members, Debbie Taylor, that was sent to our Facebook page recently. The "Doug" she is referring to is Doug Cook, a longtime member currently living in Ohio, but he was spending a week camping at GHRO. Rick is, of course, Rick Bassham...assistant Observatory Director. My personal thanks to both Rick and Doug for stepping up.

*Debbie Taylor writes...*

*I don't know where to post a thank you but sure want to thank everyone who helped me last week at the star party! In particular I want to thank Doug & Rick. Doug took us on a tour of GHRO & let us look through the big 24 in telescope. Rick helped me learn how to set up my telescope, align it & align the finder scope. He guided me through how to look up objects & go to them with my AVX mount system. I am soooo grateful! Here's a pic my hubby took of me in front of the big reflector.*



3. After many long months of not being able to host groups at GHRO, we were able to welcome twenty seven scouts and six scout leaders from Boy Scout Troop 164 from Providence Presbyterian Church to the observatory for a weekend campout. The scouts were intent on earning their astronomy and space exploration merit badges, and several of our members were most helpful in leading discussions and operating the telescopes so the scouts could observe some of the night sky wonders. Friday night, they built their rockets to launch the next morning, set up their tents and hammocks, and settled down for the night. After breakfast of pancakes and bacon (some of it overcooked) prepared by the scouts, they went through the safety orientation and fired off their rockets. The wind kicked up as the morning progressed and several rockets were lost in the trees. That afternoon, several members of the Charlotte Amateur Astronomers Club led the scouts in discussions about astronomy and space exploration careers, possible missions to space, the planets, and readied them for a night of observing. My thanks to Dr. Jim Gaiser, Ken Steiner, Phil Foust, Rick Basham, Nancy Deal, Tom Blevins, and Butch Phaneuf for their unwavering assistance in leading the discussions, operating the telescopes, and welcoming the scouts to a very busy weekend. - Benton Kesler



4. The next training session will be Saturday, April 23 beginning at 5 PM. Please contact Jim Gaiser at [jegaizer@gmail.com](mailto:jegaizer@gmail.com) to register. Dress warmly, you never know this time of year!
5. The next star party is Saturday, April 30 beginning at dusk. Finger crossed for clear skies.

## **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 \*\*\***

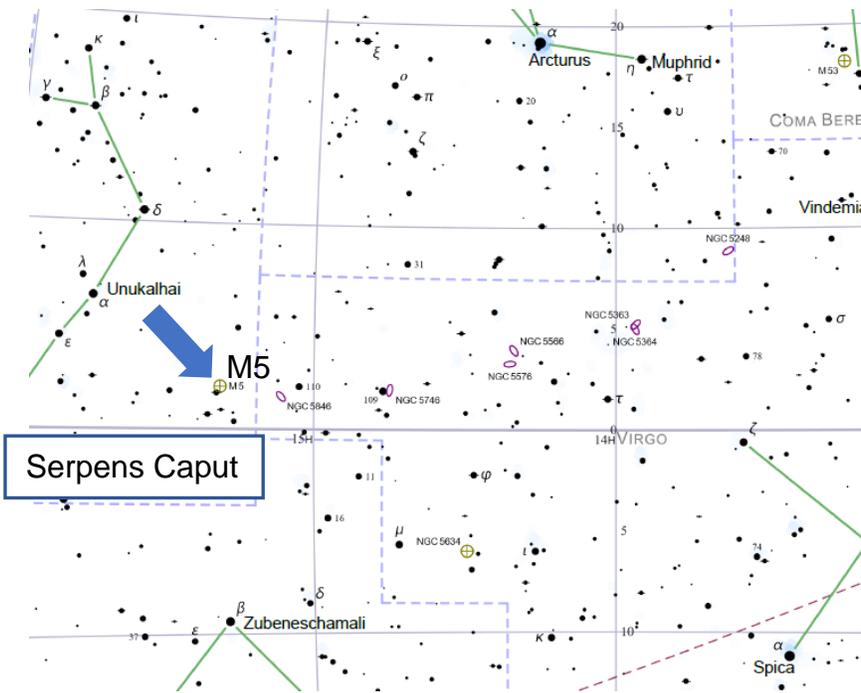
This facility (GHRO) and adjoining area may contain uneven terrain, dangerous wildlife, low light conditions, and dangerous man-made obstacles.

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.

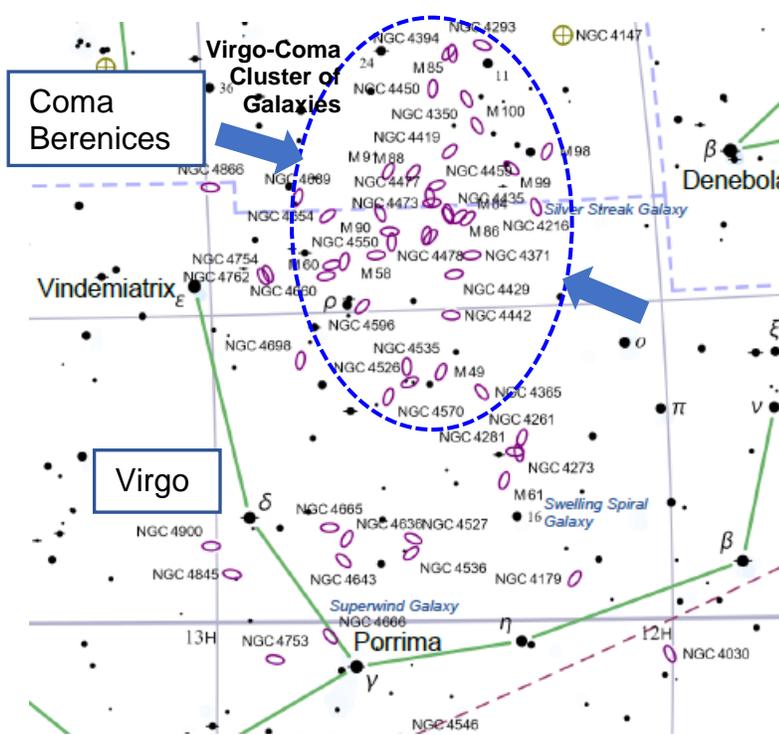
Users of this facility agree to hold harmless the Charlotte Amateur Astronomers Club, its Directors, and its members for any and all injuries sustained while participating in club activities or using this facility.

# April 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, a beautiful globular cluster and many, many galaxies!



At 13 billion years, the globular cluster **M5** is almost as old as the Universe and one of the very oldest in our Milky Way galaxy. Globular star clusters contain thousands of stars, tightly packed into a symmetrical ball. M5 is estimated to have at least 100,000 stars and perhaps even five times that many. About 165 light years in diameter, it is one of the largest globular clusters discovered. Many amateurs believe it to be the most beautiful in the northern hemisphere.



The **Virgo-Coma Cluster of Galaxies**, is a huge aggregation of systems at a mean distance of around 60 million light-years. The cluster covers about  $10^\circ$  in the sky (twenty times the diameter of the Full Moon), which implies that its physical diameter is some 10 million light-years. For backyard telescope users, there are sixteen Messier objects in the cluster and several other galaxies brighter than 11th magnitude. From a dark site, a 6-inch scope will show about 140 galaxies in this region! The cluster straddles the boundary between Coma Berenices and Virgo. How many do you see!?

Acknowledgements:

NightSkyInfo [www.nightskyinfo.com/archive](http://www.nightskyinfo.com/archive) for target descriptions, adapted.

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 scroll down the left column to "Mag 7 Star Atlas" and follow the link.

**Happy Observing!**

## Endowment Corner

Gifts for the Present:

### Real-estate

A gift of property can be a part of one's distribution of assets with certain tax advantages.

To make a contribution or learn more, please visit  
<http://charlotteastronomers.org/endowment.htm>

Ken Steiner  
Chair, CAAC Stewardship Foundation

---

### CAAC CONTACTS

President	Joel Levy	<a href="mailto:levyjoelh@yahoo.com">levyjoelh@yahoo.com</a>
Vice President	(Vacant)	
Treasurer	Scott Goforth	<a href="mailto:scottgoforth8@gmail.com">scottgoforth8@gmail.com</a>
Secretary	Nazim Mohamed	<a href="mailto:info@charlotteastronomers.org">info@charlotteastronomers.org</a>
Observatory Director	Jim Gaiser	<a href="mailto:jegaiser@gmail.com">jegaiser@gmail.com</a>
Public Outreach Coordinator	Neil Easden	<a href="mailto:naeasden@gmail.com">naeasden@gmail.com</a>