



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

### CAAC August 2021 Meeting

<p><b><u>Next Meeting:</u></b> Friday August 20th, 2021</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>
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## When home is 250 miles up! Life on the International Space Station

Ever wonder what it is like to work and live in space? Join Phyllis Friello, Education Manager from Space Center Houston and investigate life aboard the International Space Station. Humans have been living and working in space for over 20 years! Learn how a weightless environment effects the human body, and discover how the work on the ISS is preparing us for our human journey to Mars.

### Speaker Bio – Phyllis Friello

Phyllis Friello is the Education manager at Space Center Houston and the Johnson Space Center's Educator Resource Center at SCH. She earned a B.S. from the George Washington University, in Washington, D.C. and a M.S. from Old Dominion University in Norfolk, Virginia. The majority of her professional career was as a research scientist and manager at the Johns Hopkins and Harvard Schools of Medicine and the National Institutes of Health, focusing on ophthalmology and neuroimaging research. Following this she became a teacher for Baltimore City Schools, teaching physics at the Baltimore School for the Arts, a public pre-professional arts school in Baltimore, Maryland. Her academic achievements have included several fellowships and awards to competitive NASA programs. She is a Master Educator and Education Ambassador for NASA and the American Institute for Physics. In 2015 she was a guest of President Obama at Astronomy Night at the White House.



## 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://zoom.us/j/99195547358?pwd=a0ZzUU10Z01Zc0l4emprZVVaeHEwQT09>

If needed Meeting ID: **991 9554 7358**

Passcode: **688161**

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>

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## From the President:

Friends,

I hope your summer continues to be astronomically rewarding as fall peeks around the corner.

As a reminder, we are still planning a fall cosmic camporee so please stay tuned for an update from the Observatory Director. It's a great time for friends and family to enjoy the Stars and ... pancakes. Bring your tents and a sense of adventure!

Our club continues to grow. This month we had several new inquires and we were contacted by the Charlotte Observer regarding the Perseids. Thank you for being supportive of our community.

As always, we encourage you to visit YOUR club facilities in Taxahaw SC and we are eager to get you looking up with the help of one of our many fine loaner telescopes.

Clear Skies,  
Joel Levy  
CAAC Club President

## CAAC Treasurer's Report as of 07/31/2021

### 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: 6/30/2021</b>	<b>\$5,420.74</b>
2	<b>Income:</b> Dues and Fees \$90.00 June and July GHRO Infr. Improv. Expenses: X-fer \$3,236.89  <b>Expenses:</b> GHRO Utilities (gas, elec, internet) \$279.00 Facility \$134.56 GHRO Infrastructure Improvements July \$1,534.40 Service fee to accept credit cards \$4.13	
3	<b>Operating Fund Balance: 7/31/2021</b>	<b>\$6,795.54</b>

### Non-Operating Funds

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

1	<b>Non-Operating Fund Balance: 6/30/2021</b> Scholarship Fund \$2,989.36 Contingency Fund \$27,361.61 GHRO Infrastructure Improvement \$25,155.96	
2	<b>Income:</b> Interest \$0.47	
3	<b>Expenses or Transfers:</b> June and July GHRO Infr. Improv. Expenses \$3,236.89	
4	<b>Non-Operating Funds Balance: 7/31/2021</b> Scholarship Fund \$2,989.36 Contingency Fund \$27,362.08 GHRO Infrastructure Improvement \$21,919.07	

Scott Goforth  
CAAC Treasurer

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## News from GHRO

1. The August star party was just like the one in June, a complete washout. Even the first ¼ moon couldn't peek through. Let's try again on September 11, a 20% moon will present itself early, but Jupiter and Saturn should be outstanding in the early evening.
2. Given the current spread and virulence of delta variant of Covid-19, we will be reverting back to mask wearing for everyone in the Outreach center at GHRO until further notice.
3. The next training session at GHRO has been scheduled for Saturday, September 18 beginning at 5 PM. Anyone who needs training (or a refresher) on the use of the club owned telescopes is welcome to attend. Please contact me via e-mail ([jegaiser@gmail.com](mailto:jegaiser@gmail.com)) to reserve your spot. Remember, training is required for access to any of the buildings.
4. An update on the GHRO infrastructure project shows that new power to the south field is in place, a huge shout out to Ken Steiner, Dale Poole and Mike Zelechowski, who worked all day in the 90+ degree weather to get it done. Rick Bassham helped early, setting us up to succeed...thanks to all. The ground is a little torn up from the parking lot to the power panel south of the new road. Be careful when walking through the area in the dark.
5. Fiber optic cable will be trenched beginning in September, the goal is to have all of the access points available by November. The telescope storage building near the all-member pad will also begin construction in September...it needs to cool off a bit.
6. Cosmic Camporee may/may not occur this year, depending on how the COVID situation looks as the time draws near. The tentative date is October 29-31, the call will be made in time for the September newsletter...stay tuned.
7. Finally, a reminder to clean up after yourselves...especially in the Outreach Center. If the chairs could be placed back under the table, surfaces wiped clean and trash taken out by the last person out...it would go a long way. Thanks in advance for your cooperation.

### GHRO Information (see <http://1drv.ms/1m2wPUj>)

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 \*\*\*

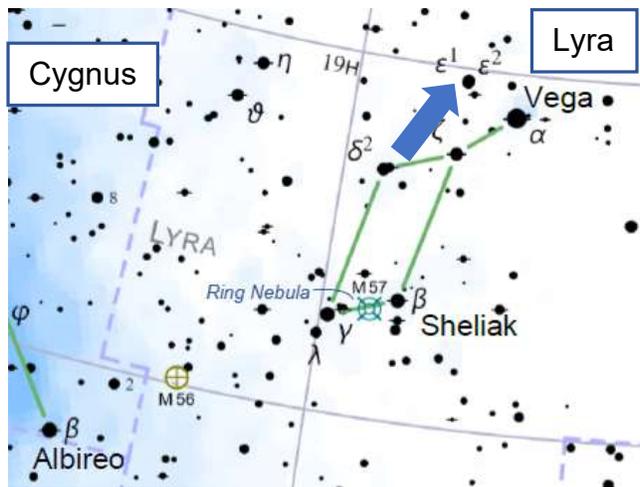
This facility (GHRO) and adjoining area may contain uneven terrain, dangerous wildlife, low light conditions, and dangerous man-made obstacles.

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.

# August 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 double-double star, a galaxy and a cluster!

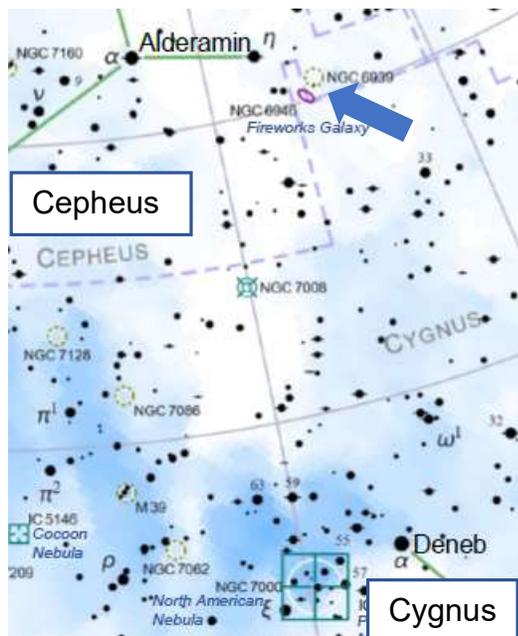


One excellent example of a multiple star is **Epsilon Lyrae**, a quadruple system commonly known as the Double-Double.

To the average eye Epsilon Lyrae appears as a single star, but small binoculars or even keen eyesight show it to consist of a wide pair of 5th-magnitude stars. Nothing spectacular until now, but if you use an aperture of at least 3-inches and high power you will find that each star is itself a close double!

These two pairs were first noticed in 1779 by William Herschel, the famous

musician turned astronomer. Here is his observing log entry: “A very curious double-double star. At first sight it appears double at some considerable distance, and by attending a little we see that each of the stars is a very delicate double star.” Besides providing two pairs for the price of one, Lyra’s Double-Double is a fine resolution test for small-aperture scopes. To get accurate results, choose a night with low atmospheric turbulence and try to observe using the highest magnification your scope can give.



**NGC 6946** is a large spiral galaxy, lying on the Cepheus – Cygnus border about two degrees southwest of the 3rd-magnitude star Eta Cephei. The galaxy is 11th magnitude, and appears nearly circular to the eye, measuring about 8' in diameter.

Many observers find this object difficult even with large telescopes, but personally I had no trouble seeing it with a 4.5-inch scope. I think that the key to success is observing from a location with very dark skies, because the galaxy has a low surface brightness even moderate light pollution will make it invisible.

Appearing in the same visual field, just 40' northwest of NGC 6946 you will find **NGC 6939**, a dim open star cluster. Its eerie glow is partially resolved into stars at medium power, in the

northern part of the cluster you will see three stars disposed in a triangle.

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 start 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!**

## CAAC CONTACTS

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