



Charlotte Amateur Astronomers Club www.charlotteastronomers.org

Next Meeting: Friday November 16th, 2018

Time: 7:00 PM

Place:

Myers Park Baptist Church
Education Building – Shalom Hall (Basement)

Address:

1900 Queens Road
Charlotte, NC 28207

CAAC November 2018 Meeting

Appalachian State has had an active astronomy program for about 40 years. The research programs at DSO will be described as well as the Public Outreach program. Our undergraduate and graduate astronomy education activities will also be described. All of these center on state-of-the-art facilities at the off-campus Dark Sky Observatory and the on-campus, roll-off roof, GoTo instructional astronomy lab. All instruments at DSO as well as at the GoTo lab are now controllable from home (DSO) or the adjacent teaching classroom (the GoTo facility). Lots of the details will be of interest to amateurs who can use the same techniques to control their telescopes. Indeed, some of our research programs are within access of equipment and skills possessed by hobbyists.

Speaker

Dan Caton grew up in Tampa, Florida and attended the University of South Florida, graduating in 1973 with B.A.'s in astronomy and physics. He stayed on to get a Masters in astronomy, and then his Ph.D. in astronomy at Gainesville. After three years of temporary positions, he took a tenure-track position at Appalachian State, where he eventually became a tenured full professor of physics and astronomy, and Director of Observatories. Dan is still there, living in Boone with his wife Susan. His area of expertise is in the study of binary stars. As the founding president of the North Carolina Section of the International Dark-Sky Association, Dan works to reduce light pollution in the state. He also works to debunk



pseudoscience and at the same time investigates claims of the paranormal in such phenomena as the Brown Mountain Lights, having appeared on specials on Discovery Kids, the Travel Channel, and the National Geographic Channel. Dan has been a contributor of columns to the Charlotte Observer since 1996 and currently writes the monthly Up in the Aircolumn for the Observer's SciTech section, appearing the third Monday of the month in the Observer and in the Raleigh News & Observer. Susan and Dan have twins, son Ashton and daughter Celeste, who graduated recently from Appalachian State.

From the President

Reminder, NO December Meeting!

CAAC Christmas Party

Well folks it's almost that time of year again! Charlie and Gwen Clayton are once again kindly offering their beautiful home and generous hospitality to us for our annual Christmas dinner event. This year's festivity is **Saturday, December 1st at 6:30 pm**. The Clayton's address is 306 Riverton Road, Matthews, NC 28104. It is extremely important to RSVP if you plan attending with number of guests and which covered dish you will be bringing. Please RSVP to 704-821-9891 or email your intentions to: charlieclayton@windstream.net. We are looking forward to seeing everyone again this year!

Special Opportunity at Charlotte Symphony

I received the information below from the Charlotte Symphony concerning the presentation of Holst's *Planets* and a special performance of *Deep Field* with Hubble images. You can take in this performance on Friday or Sunday so as not interfere with our annual Christmas Party.

"Music Director Christopher Warren-Green will lead the Charlotte Symphony and Chorus in the performance during a three-performance weekend featuring Holst's *The Planets*, November 30 through December 2 at Belk Theater at Blumenthal Performing Arts Center in uptown Charlotte.

"I'm beyond thrilled to debut this magnificent new film with orchestra for the first time," says Maestro Warren-Green. "These images truly enhance the music he wrote; it will be a spectacular visual and aural experience."

Audience members will also be able to download the *Deep Field* app for mobile devices to participate in the music-making experience. At a specified point in the performance, Maestro Warren-Green will cue the audience to play the app, which contributes electronic sounds written by Whitacre to accompany his *Deep Field* work.

"I'm truly thrilled that the Charlotte Symphony, Charlotte Symphony Chorus, and Maestro Christopher Warren-Green will premiere *Deep Field* with our brand-new film," says Whitacre.

The *Deep Field* score and film paint the incredible story of the Hubble Deep Field. Turning its gaze to a tiny and seemingly dark area of space (around one 24-millionth of the sky) for an 11-day long period, the Hubble Space Telescope revealed over 3,000 galaxies that had never previously been seen, each one composed of hundreds of billions of stars.

The film is a first-of-its-kind collaboration between Whitacre, producers Music Productions, scientists and visualizers from the Space Telescope Science Institute and multi award-winning artists 59 Productions. With accessibility as a key goal, *Deep Field: The Impossible Magnitude of our Universe* will be released globally on [YouTube](https://www.youtube.com/watch?v=...) at 7 a.m. ET on Friday, November 16, 2018.

Charlotte, NC, performances live with orchestra are Friday, November 30 and Saturday, December 1 at 7:30 p.m., and Sunday, December 2 at 3 p.m. at Belk Theater. Tickets start at \$19.

For tickets and more information, visit charlottesymphony.org.

Ken Steiner
President

CAAC Treasurer's Report as of 10/31/2018

Part 1 of 2

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 net Southern Star income (or expense).
- Funds are expended to meet operating obligations of the club.

1	Operating Fund Balance: 9/30/2018	\$11,454.54
2	Income	
	Dues & Fees	2997.62
	Pad Fees	150.00
	Donations	200.00
	Expenses	
	GHRO Expenses	72.67
3	GHRO Utilities	302.93
	Fees for Credit Card Service	90.70
	Meeting Expense	818.64
	CAAC website Hosting (5 yr)	400.25
	Cosmic Campboree	285.77
4	Operating Fund Balance: 10/31/2018	\$13,231.45

Part 2 of 2

Non-Operating Funds

Purpose: Administer gifts and donations for designated use.

1	Balance 9/30/2018: Non-Operating Funds	
	Scholarship Fund	5,989.36
	Contingency Fund	28,283.94
	Long-Term Fund	7203.74
2	Income	
	Donation: Microsoft, BofA, Other	0.00
	Interest	
	Expenses or Transfers	1.05
3		0.00
	Balance 10/31/2018: Non-Operating Funds	
	Scholarship Fund	5989.36
	Contingency Fund	28,038.94
	Long-Term Fund	72057.79

Annual dues for our fiscal year October 2018 through September 2019 will be due beginning October 1. We can accept your renewals either through the membership link on the club website www.charlotteastronomers.org or by cash or check at our next meetings. Dues are \$60 for the year and include access to the Gayle H Riggsbee Observatory (GHRO) in SC.

Benton Kesler
CAAC Treasurer

CAAC Outreach Updates

Make sure you are registered at the Night Sky Network so that you can receive automatic email notifications of upcoming events.

If you are interested in getting more involved with CAAC Community Outreach please contact Kevin Moderow.

Kevin Moderow
CAAC Outreach Coordinator
kevinmoderow@gmail.com

SAVE THE DATE!!!

CAAC Southern Star 2019

April 4 - 7, 2019

Mark Your Calendar!

Save the Dates! Save the Dates!

The Charlotte Amateur Astronomers Club, Southern Star Committee is busily working on getting the lineup of excellent speakers for our 33rd annual astronomy convention, obtaining great door prizes, etc.

Check our website in the coming months for more details.

<http://www.charlotteastronomers.org/southernstar>

We hope to see YOU there!!

News from GHRO

1. There will be telescope training for the solar, 8" refractor and the 16" reflector on Saturday night, **November 17** beginning at 5 PM. If you haven't been trained, or want a refresher, come on down. If you missed the NEXUS training for the 24" telescope, we'll do it again on the 17th as well. It's an 65% full moon, so we'll begin the NEXUS training when we finish the training on the other telescopes...about 7 PM.
2. There is no CAAC sponsored star party or telescope training in December, but don't let that stop you from coming down and using the facility. Remember, it's your observatory, so please use it. We do ask that you clean up before you leave. A good practice is to act as if you are going camping...pack out what you pack in.
3. The Geminid meteor shower peaks on Friday, December 14. Unfortunately, there is a first quarter moon...so the early evening viewing will be hampered. After midnight, the radiant of the shower will be higher in the sky and no moon will give rise to great conditions. Of course, it all depends on a clear sky. This shower is often as good as the more famous Perseid shower in August, most people don't observe because of the cold. So bundle up and come on down to GHRO and enjoy the show. A sleeping bag on a chaise lounge chair goes a long way...

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.

*** WARNING ***

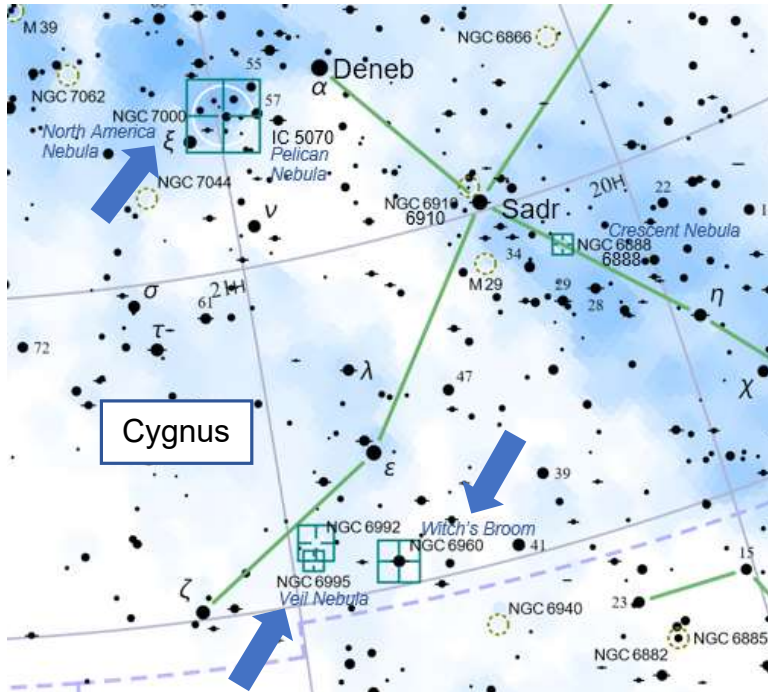
This facility and adjoining area may contain uneven terrain, dangerous wildlife, low light conditions, and dangerous man-made obstacles.

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.

November 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, three wonderful nebulae in the constellation, Cygnus.



Cygnus, also known as the Northern Cross, is a prominent constellation of the northern skies representing a swan flying along the Milky Way. On early autumn nights, Cygnus shines in the east during the evening, sweeps high overhead after midnight, and swings to the west by dawn. Just 3° east of Cygnus' brightest star, first-magnitude Deneb, lies a truly spectacular emission nebula. NGC 7000, more commonly called the **North America Nebula** after its resemblance to Earth's continent, is known to most amateur astronomers, yet only a few have actually seen it.

This is probably due to the misconception that the nebula is only visible in long exposure photographs; this is not the case. In fact, under good conditions, NGC 7000 is visible to the naked eye as an enhancement of the Milky Way. However, dark skies are definitely a must.

You will be looking right at it if you center Deneb in the field of view and then shift eastward to a kite-shaped asterism formed by the stars 55, 57, 60, and Xi Cygni. Averted vision will help bring out the dark nebulosity forming the "Gulf of Mexico", and the "East" and "West Coasts".

The **Veil Nebula** is the twisted wreckage of a star that exploded as a supernova some 10,000 years ago. At an estimated distance of 1,500 light-years from us, at the time of the explosion the supernova would have been bright enough to cast strong shadows on Earth. Over time, the energy and material that was ejected into the interstellar medium has slowly expanded, and now the nebula covers an area of sky over seven times the diameter of the full Moon. The easiest part of the nebula for amateurs to locate is **NGC 6960 [Witch's Broom Nebula]**. About 2.5° northeast from NGC 6960 is the largest and brightest portion of the Veil, NGC 6992-5. This side of the nebula is easily visible even with 7×50 binoculars and stretches for nearly a full 2° in large telescopes. Some of the filamentary structure inside the arc can be clearly distinguished. Use low powers – the Veil Nebula is very large and dim, so you will need to get as much light to your eye as possible.

Acknowledgements:

NightSkyInfo 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!

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