



✧ Charlotte Amateur Astronomers Club
✧ www.charlotteastronomers.org

Unistellar and Smart Telescopes

Smart telescopes have gained popularity among amateur astronomers over the past few years, much like "goto" telescopes did in the early 1990s. Unistellar instruments originated from a Kickstarter campaign in 2017 but now lead the market. The main reason for this is that Unistellar telescopes come equipped with a direct pipeline into citizen science and independent astronomical research. For the cost of a first generation "goto" telescope you can have an instrument capable of professional research from one's backyard. In this talk, I will demonstrate the capabilities of these instruments and show some of my own results. Participants are encouraged to bring smart phones or tablets with the latest Unistellar app (free from your device's app store) installed.

Speaker: Joe Heafner

Joe Heafner, AAPT Fellow, began providing learning environments for astronomy and physics in 1992. His approach to teaching emphasizes the model of critical thinking developed by Richard Paul and Linda Elder, and the reasoning behind science rather than blind use of equations. He was the first physics instructor in North Carolina to adopt Matter & Interactions, a reformed introductory calculus-based physics curriculum incorporating computer modeling. His introductory astronomy course has a flavor unlike that at any other institution. His fourth book is an inquiry-based introductory astronomy textbook.

Joe left the Community College System in 2021 due to changes by administrators that made carrying out the classroom mission untenable, and now identifies as an Independent Scholar. He is heavily involved with grant work at the national level with AAPT and advocates for community college faculty rights and autonomy, both of which are under attack by internal and external political forces.



When not advocating for community college faculty, Joe studies ways to modernize the introductory physics curriculum by having an improved mathematical foundation and by incorporating special and general relativity.

CAAC November 2025 Meeting

<u>Next Meeting:</u> Friday November 21st, 2025 <u>Time:</u> 7pm ET	<u>Place:</u> <i>Myers Park Baptist Church Education Building – Shalom Hall (Basement) <u>Or Zoom Virtual Meeting</u> (See info on next page)</i>	<u>Address:</u> 1900 Queens Road Charlotte, NC 28207
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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/82489334922?
pwd=dWRsdDFkMjJOWFVNUFIIN1IFL1NoQT09](https://us06web.zoom.us/j/82489334922?pwd=dWRsdDFkMjJOWFVNUFIIN1IFL1NoQT09)

If needed Meeting ID: **824 8933 4922**

Passcode: **893125**

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,

It is that time of year where we dwell on our blessings and give thanks. I am so grateful for all of the new and long standing members that make this club such a wonderful club to be a part of. I truly appreciate all of the time, energy, and joy you bring!

As the nights continue to get longer and cooler, please make sure you take time to step outside and enjoy the night sky!

The club does not have a meeting in December, but we will continue to have our annual holiday celebration at Charlie Clayton's house this year. We will come together for a potluck celebration on December 6th at 6:30pm. If you are going to attend, please contact Charlie at 704-821-9891. We look forward to seeing you!

Charlie's Address: [306 Riverton Rd, Matthews, NC 28105](#)

Clear skies,

Justin
CAAC President

Secretary's Report:

1. Please join us in a special year end event as we continue our annual holiday celebration at Charlie Clayton's house this year. We will come together for a potluck celebration on December 6th at 6:30pm. If you are going to attend, please contact Charlie at 704-821-9891. We look forward to seeing you!
Charlie's Address: [306 Riverton Rd, Matthews, NC 28105](https://www.google.com/maps/place/306+Riverton+Rd,+Matthews,+NC+28105)
2. The **2026 CAAC annual membership** began in October and we want to express our gratitude to new joining members and to our renewing members. Your participation is greatly appreciated.
 - 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

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. **Are you looking for ways to participate in the club?** We would appreciate volunteers for the following standing committees to better serve our members:
 - Room Set Up
 - Refreshments
 - Audio/ Video
 - Web Master/ Social Media. Please be on the lookout in the next couple of weeks for emails with more details and how to participate. Please contact the CAAC Officers and let us know which committee interests you. Thank you for your consideration. The club is adding a new

CAAC Astronomy Equipment Sales page to the newsletter. Please check out the offerings at the end of the newsletter.

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

How do I sign up?

- Visit this link: <http://slack.south40astro.com> or email caac-slack@jamieandamy.com

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

8. The **CAAC website**, <https://charlotteastronomers.org/> 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.

Best,

My Do
CAAC Secretary

CAAC Treasurer's Report as of 10/31/2025

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: 9/30/2025	\$9,313.64
2	Income:	
	Dues and Fees	\$4,660.00
	Donation	\$25.00
3	Expenses:	
	Zoom/admin	\$42.59
	Binocular building	\$161.73
	Scholarship award	\$1,000.00
	GHRO Library Shelf	\$113.52
	GHRO Utilities (alarm, elec, internet)	\$128.77
	Service fee to accept credit cards	\$151.04
4	Operating Fund Balance: 10/31/2025	\$12,400.99

Non-Operating Funds

Purpose: Administer gifts and donations for designated use.

1	Non-Operating Funds Balance: 9/30/2025	
	Scholarship Fund	\$4,706.87
	CAAC Self Insurance Fund	\$20,000.00
	Contingency Fund	\$7,433.28
2	Income:	
	Interest	\$0.27
3	Expenses or Transfers:	
	Scholarship Fund X-fer to checking	\$0.00
4	Non-Operating Funds Balance: 10/31/2025	
	Scholarship Fund	\$4,706.87
	CAAC Self Insurance Fund	\$20,000.00
	Contingency Fund	\$7,433.55

Scott Goforth
CAAC Treasurer

News from GHRO

1. Don't forget the monthly star party on Saturday, November 22...dusk is early!!!
2. The next training date is November 29 at **4:30pm**.
3. When observing at GHRO please ensure you minimize the amount of light you produce. Especially for imagers, **please take care to hide lights from your equipment and computers**. Plastic bins are available for use to put your laptop in.
4. Please follow the posted startup and shutdown procedures for any club owned scopes. This helps other members when they go to use our equipment. Please ask if you are unsure.
5. Don't forget that the current sky conditions and weather and the Clear Sky Clock is found at the bottom of our homepage... <https://charlotteastronomers.org/>
6. Construction of the binocular observatory is coming along nicely; with a big enough work crew we could be done this weekend. We'll be starting at 9:00 AM as long as it is not actively raining. Many thanks to Rick, Jeff, Nilay, Brandon, Tom, Scott and Phil and others for working at various times since our last meeting...I hope to see a bunch of you on the 21st.



7. The complete GHRO calendar for 2025 is on the next page.

2025 Star Party and Training Schedule

Month	New Moon Date	Star Party Date	Moon Illumination	Moon Rise	Training Date	Training Start Time (PM)
January	29	25	16% waning	4:18:43 AM	No training	
February	27	22	31% waning	3:06:53 AM	8	5:00:00 PM
March	29	29	New Moon	7:12:18 AM	1	6:00:00 PM
April	27	26	2% waning	5:41:56 AM	12	6:00:00 PM
May	26	24	9% waning	4:11:22 AM	3	6:30:00 PM
May					31	6:30:00 PM
June	25	21	19% waning	2:43:06 AM	28	6:30:00 PM
July	24	26	4% waxing	8:17:51 AM	No training	
August	23	23	New Moon	7:08:31 AM	2	6:30:00 PM
August					30	6:30:00 PM
September	21	20	1% waning	5:58:38 AM	27	5:30:00 PM
October	21	25	15% waxing	11:36:38 AM	No training	
November	20	22	5% waxing	9:22:37 AM	1	5:30:00 PM
November					29	4:30:00 PM
December	19	20	0.5% waxing	8:06:18 AM	No training	

What would you like to see at GHRO?

Please provide any suggestions on things you would like to see at GHRO! I want to make sure this facility is providing the maximum benefit to all of our members, and I can't do that without your feedback. GHRO is already a world class amateur astronomy location, but it can always be improved. You can always contact the GHRO director, Jim Gaiser at ghro@charlotteastronomers.org.

Jim Gaiser
CAAC Observatory Director

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.

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 Report November 2025

Scheduled:

11/24/2025 **Homeschool Group Program - GHRO Heritage Learning Center**

[1427 Bloomwood Dr, Lancaster, SC 29720](#)

Setup: 3:30 PM

Program: 4:30 - TBD PM

12/13/2025 **Boy Scout Troop 502g Astronomy Merit Badge- GHRO Heritage Learning Center**

[1427 Bloomwood Dr, Lancaster, SC 29720](#)

Setup: 3:00 PM

Program: 4:00 - TBD PM

04/25/2026 **Statewide Star Party - Morrow Mountain State Park**

[49104 Morrow Mountain Rd, Albemarle, NC 28001](#)

Setup: 6:00 PM

Program: 7:00 - 9:00 PM

If you would like to volunteer with any of these outreach programs, please contact Tom Blevins at, publicoutreach@charlotteastronomers.org

Clear Skies,

Tom Blevins
CAAC Public Outreach Coordinator

CAAC Astronomy Ad Listings

Welcome to the CAAC classifieds. If you would like to post an ad in the newsletter, please let us know at the beginning of each month and we will list your items. Please provide a brief description and your contact information.

- Item 24-001:** *Obsession 15 Classic f4.5 with Argo Navis, Custom Equatorial Platform, etc.* for sale in Chapel Hill. \$2700. Local pick up or seller is willing to drive for meet up. Ad can be viewed on AstroMart [here](#), or contact:
- Bob Clemen, rtclemen@gmail.com



Item 24-002: Sold

Item 24-003: Sold

- Item 24-004:** *Star Tracker for sale: iOptron SkyGuider Pro EQ camera & the optional iOptron SkyTracker Ball Head camera mount, lightly used & in excellent condition.* for sale in Charlotte
Included:

1. *iOptron SkyGuider Pro EQ camera (mount model #355)*

- internal rechargeable lithium battery, good for 20 hours of operation

- illuminated internal polar scope for polar alignment & built in bubble level

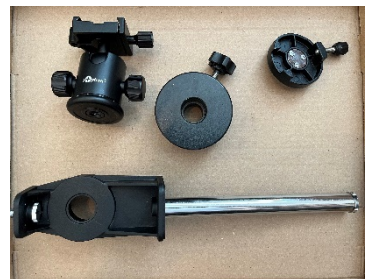
- built in camera trigger port & ST-4 guiding port

- Detachable counterweight shaft & 3-pound counterweight

2. *Includes the separately purchased iOptron SkyTracker Ball Head camera mount (model #3305A)*

- ball head mount allows for 360 degree panning & makes it easy to tilt a camera into position

- can support a heavy camera lens, bubble levels on each axis & also has a dovetail mounting bracket



List price for this package brand new with the optional ball head mount is \$463 today. Asking \$325 for the full package. Can be picked up in Charlotte or other arrangements may be accommodated, contact:

- David Harris, 704-577-8977, davidharris11@yahoo.com

- Item 23-001:** *1958 Criterion Newtonian reflector*, 6" f/8 for sale with original mount. Asking \$600 with free delivery within the Charlotte area.
- David Friday, wdfriday@twc.com 704-579-1778.

- Item 23-002:** **New SkyQuest Intelliscope XT8.** List Price \$ 1,300.00.
All manuals with it-including initial purchase paperwork
- **Make An Offer.**
 - Contact Jim Gaiser



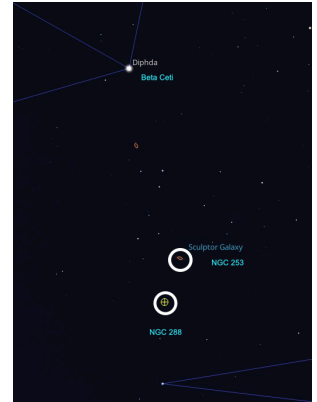
The Night Sky in November 2025

We are revamping the monthly Sky Challenges to provide three levels or degrees of observations ranging from Binoculars, to Small Telescope, to the Challenge Object. The fun is in the hunt for each object and to take time to carefully observe, may be sketch, and share your observations.

GHRO Dark Sky Challenge – NGC 253

Spiral Galaxy 7.1 magnitude. Due to the southern declination the galaxy is low in the southeast from GHRO and can be a challenge unless the transparency is good. On a good night there are hints of a dust lane. The galaxy would come close to rivaling Andromeda if it was at a higher declination. As an added bonus, dropping a little south and east from NGC 253 toward 4th magnitude Alpha Sculptoris will take you to the 8th magnitude loose globular cluster NGC 288.

Discovered by Caroline Herschel – 1783
11.4 million light years distant
R.A. 00 hour 48 min. Declination – 25.17



Small Scope Objective – Gamma Arietis

Double Star 3.8 combined magnitude - two 4.8 magnitude evenly matched pair. They look like a pair of oncoming headlights on a dark road.

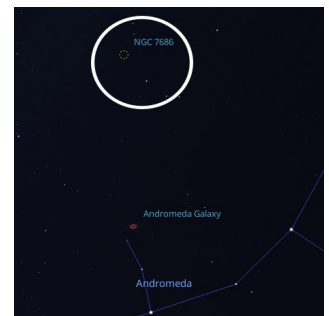
One of the first double stars discovered by a telescope by Robert Hooke in 1664
204 Light years distant
R.A. 1 hour 54 min. Declination + 19.18



Urban Challenge – NGC 7686

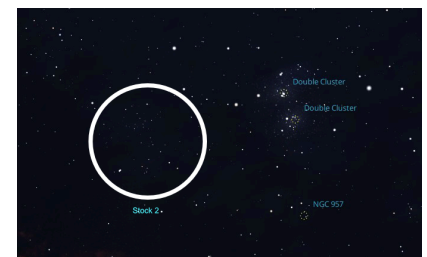
Open Cluster in Andromeda - magnitude 5.6
Loose cluster of perhaps 80 stars Brightest members are K type orange giants

Discovered by William Herschel in 1787
Haven't been able to find a confirmed distance to the cluster
R.A. 23 hour 30 min. Declination + 49.19



Binocular Challenge – Stock 2 Muscle Man Cluster

Cluster of stars that look just like a stick man holding his arms out to the side to flex his biceps. Located in the same field of view to the left of the famous Double Cluster in Perseus. The cluster is actually over the border in Cassiopeia. The cluster is classified as a Trumpler I 2 m open cluster – Detached with strong central concentration, moderate brightness range, medium rich.



We welcome and encourage our CAAC members to visit the **GHRO Observatory** to enjoy, learn, and observe these and other celestial wonders.

Celestial Objects Map courtesy of [Stellarium](#)

We would like to acknowledge the star field map for this report was edited from information courtesy of [Mag Star 7 Star Atlas Project © 2005 Andrew L. Johnson for star maps](#)

If you would like to download a map of each month's night sky, use this link, <http://www.skymaps.com/downloads.html> to download, print, and navigate the Evening Sky Map.

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

Qualified Charitable Distributions If you are 70½ or older, you may make a tax-free gift directly from your IRA. That gift does not count as taxable income, but does count toward your annual Required Minimum Distribution (RMD). This is a great way to direct your RMD to a good cause and to avoid the income tax normally incurred.

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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