



Charlotte Amateur Astronomers Club
www.charlotteastronomers.org

CAAC January 2024 Meeting

<p><u>Next Meeting:</u> Friday January 19th, 2024</p> <p><u>Time:</u> 7pm ET</p>	<p><u>Place:</u> <i>Myers Park Baptist Church Education Building – Shalom Hall (Basement) Or Zoom Virtual Meeting</i></p> <p><u>Address:</u> 1900 Queens Road Charlotte, NC 28207 <u>Or</u> Zoom web conference link (See newsletter info below)</p>
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Observationally Determining Chemical Abundances In Stars

All life on Earth is especially dependent on a handful of chemical elements, one of which is phosphorus. Little is known, however, about the origin of phosphorus in the Universe due to its relative low abundance in nearby stars, as well as difficulty detecting it in stellar atmospheres. The talk will explore how we observationally determine chemical abundances in stars, and how we study the origin of the elements, to know that we are truly "made of star stuff" as Carl Sagan put it.

Speaker: Jonathan Rupert



Growing up, Jonathan was a regular member of CAAC from 2013 to 2018. As a member, he attended events such as Southern Star and star parties at GHRO, and developed the majority of his astrophotography skills at the observatory. When Jonathan finished high school, he moved to Texas to attend the University of Texas at Austin to study physics & astronomy. He completed his B.S. Physics degree in May 2022, then joined private industry for a year. Jonathan then went back to school for a semester to complete his B.S. Astronomy degree in December 2023.

In his time at UT, Jonathan worked on a handful of research projects, such as chemical abundances of phosphorus in stars and also modeling the interior of Titan. Right now, he is submitting Ph.D. applications for physics & astronomy beginning fall 2024.

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=dWRsdDFkMjJOWFVNUFIIN1FL1NoQT09>

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,

This is not intended to usurp the Night Sky column at the end of this newsletter, but rather as a challenge to get out and just look. As the New Year unfolds, always look west to start your evening...those are the objects that are setting first. Prepare to bid Saturn adieu...it is not with us much of the evening as it sets around 8:30 PM. The ring structure is still apparent in any telescope, so take one last look before it's too late.

Near zenith is Andromeda and Triangulum...home of two of the larger galaxies in our local group. If you've not seen M33 (Triangulum) through the 24" telescope at GHRO...you've missed something pretty unique. With good seeing, the spiral arms are readily apparent with averted vision. I encourage each and every one of you to take the opportunity before it gets too low in the west. There was a great discussion in the November newsletter about M31...reread that is you need a refresher.

Next, let us turn our eyes East and South as we witness Orion in all of its splendor rising gracefully and dominating the night sky. With countless clusters, nebulae and bright stars, Orion is clearly the dominant constellation of winter. There are 7 first magnitude stars in and around Orion and they make up the Winter Hexagon. The Winter Hexagon is composed of Pollux (Gemini), Procyon (Canis Minor), Sirius (Canis Major), Rigel (Orion), Aldebaran (Taurus) and Capella (Auriga)...with Betelgeuse in the center for good measure. There is no other region in the night sky that is so rich with bright stars...take the opportunity to put away the telescope and just gaze at the wonders that the winter hexagon has to offer in its boundaries.

I hope you've enjoyed your lap around the sky...these are just some of the highlights the winter sky offers. Naked eye and with optical aide, the winter sky is a spectacle you don't want to miss.

Clear skies,

Jim
President, CAAC

Secretary's Report:

1. The 2024 CAAC annual membership began in October:
 - 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. Our gratitude to new joining members and to our renewing members. Your participation is greatly appreciated.
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](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.
6. 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.

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. Become a NASA Partner Eclipse Ambassador

In April 2024, a solar eclipse will be crisscrossing the US. In an exciting new NASA partnership, undergraduate students and eclipse enthusiasts will partner to engage their local communities in advance of the eclipses to enjoy the awe and wonder of this unique alignment. Eclipse Ambassadors will bring outreach programs to underserved audiences in local libraries, colleges, schools, and other community organizations. Training, partnerships, and resources are provided, and all engagement can be done before the eclipses - there's no commitment when the shadows arrive. Undergraduates will also receive a stipend, plus opportunities to further their involvement in NASA programs.

Apply today! www.eclipseambassadors.org

Find someone near you on our [Eclipse Ambassador Map](#)

We make it easy to share about the program:

[Share a Facebook Post](#) or share [NASA STEM's FB Post](#)

[Tweet about it!](#)

[Share it with colleagues on LinkedIn](#)

9. 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
12/31/2023**

<u>Operating Fund</u>		
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: 11/30/2023	\$8,402.24
2	Income:	
	Dues and Fees	\$1,365.00
	Donations- Endowment	\$750.00
3	Expenses:	
	Christmas Party	\$150.00
	GHRO Utilities (alarm, elec, internet)	\$392.90
	X-fer to endowment fund	\$750.00
	GHRO Facility	\$146.00
	Service fee to accept credit cards	\$45.90
4	Operating Fund Balance: 12/31/2023	\$9,032.44

<u>Non-Operating Funds</u>		
Purpose: Administer gifts and donations for designated use.		
1	Non-Operating Fund Balance: 11/30/2023	
	Scholarship Fund	\$6,706.87
	CAAC Self Insurance Fund	\$20,000.00
	Contingency Fund	\$7,421.74
	Final Solar Panel Array Payment Fund	\$22,950.00
2	Income:	
	Interest	\$4.92
3	Expenses or Transfers:	
	Final Solar Payment	\$22,950.00
4	Non-Operating Funds Balance: 12/31/2023	
	Scholarship Fund	\$6,706.87
	CAAC Self Insurance Fund	\$20,000.00
	Contingency Fund	\$7,426.66
	Final Solar Panel Array Payment Fund	\$0.00

Scott Goforth
CAAC Treasurer

News from GHRO

1. **Telescope training** for new members (and those wishing to get a review) will be held on **Saturday, January 20th**, beginning at **4:30 PM**. This training is required for all new members who wish to use the facilities at GHRO. The training will take place even if it is cloudy, it will be canceled only if it is actively raining or snowing. If it's clear, you can practice your newfound skills immediately after the training. To sign up please contact Rick Bassham.
2. 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.
3. Please follow the posted startup and shutdown procedures for any club owned scopes. This helps other members when they go to use our equipment.
4. 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/>
5. 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 nine spots available. Users are encouraged to have their contents insured, as CAAC will not be insuring the contents of the building. Please see Rick Bassham if you have any questions.
6. A new state of the art imaging observatory has been constructed and contains a Planewave 12.5" CDK telescope on a Planewave L-350 mount. This roll-off-roof facility is available for all members of the club who get training, and it is operated from inside the Outreach Center. The telescope now has first light. Please contact Rick Bassham at ghro@charlotteastronomers.org to learn how to use it. As a primer, if you are new to astrophotography, check out the [NINA tutorial by Everyday Astro on YouTube](#). A special thank you to Dr. Jim Hermann for his generous donations.
7. Construction on the new solar panels is complete and Lancaster County has completed their inspection. We are now waiting on our utility provider to give us the go-ahead to flip the switch. Another special thanks to the Gleason family for their generous donations that made this a reality. This alone will save the club thousands of dollars per year in electricity costs for GHRO.
8. Anyone interested in the "Sponsor a Telescope" program, please reach out. My vision on this is to pair up CAAC members who want to learn more about a particular club owned telescope and/or help pass on the knowledge and history of our club scopes. There would be no monetary commitment involved, only some time. Ideally we would have two members sponsor each telescope. Sponsors would be responsible for checking their telescope once a quarter and working with the observatory director to address any required maintenance or repairs needed. You would also be expected to attend a new-member training event once a quarter to help pass on your knowledge of the history and operation of the scope. As our club grows, maintenance and knowledge transfers become much more difficult to be done by just one person. If you are interested, please reach out to Rick Bassham (ghro@charlotteastronomers.org).
9. Anyone interested in helping out with grounds maintenance, please contact Rick Bassham. It currently takes about 5 hours for one person to mow and trim the full grounds, and any help would be appreciated. Special thanks to Dale Poole for doing a lot of mowing at GHRO.

10. The complete GHRO calendar for 2023 is below:

2024 Star Party and Training Schedule

Month	New Moon Date	Star Party Date	Moon Illumination	Moon Rise	Training Date	Training Start Time (PM)
January	11	13	7% waxing	9:28:00 AM	20	4:30:00 PM
February	9	10	1% waxing	7:58:00 AM	17	5:00:00 PM
March	10	9	1% waning	6:25:00 AM	16	6:00:00 PM
April	8	6	6% waning	5:52:00 AM	13	6:00:00 PM
May	7	4	16% waning	4:21:00 AM	11	6:30:00 PM
June	6	8	6% waxing	7:46:00 AM	15	6:30:00 PM
July	5	6	1% waxing	6:35:00 AM	13	6:30:00 PM
August	4	3	1% waning	5:27:00 AM	10	6:30:00 PM
September	2	7	18% waxing	11:05:00 AM	14	5:30:00 PM
October	2	5	8% waxing	9:57:00 AM	12	5:30:00 PM
November	1	2	1% waxing	8:50:00 AM	9	4:30:00 PM
November	30	30	0% new moon	6:43:00 AM	No training	
December	30	28	5% waning	5:33:00 AM	No training	

Rick Bassham
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 January 2024

Did you, a friend, or a family member get a telescope for Christmas? It happens every year - and they're always given with the best of intentions and it can be a great start to the hobby, but all too often one or two frustrating nights will cause a new telescope owner to quickly give up and those telescopes sit unused to start gathering dust. If this sounds like a familiar story, then this telescope clinic is here to help!!

If you or someone you know has a telescope that has been wasting away since this Christmas or years gone by, there will be several members of the Charlotte Amateur Astronomers Club out at:

St. Francis United Methodist Church

4200 McKee Rd

Charlotte, NC 28270 to help you.

Date: Saturday, 2/3/2020

Time: 2:00 PM - 5:00 PM

Help them see further than ever before! We need about 5 club members to help here for our annual new telescope user clinic. See Benton after the meeting if you can help, or email him at:

benton.kesler@gmail.com

Since last meeting:

11/20 Southminster Retirement Community presentation: "Cosmic Perspective"

Scheduled:

- 2/3/2024 Christmas Telescopes
- 2/15/2024 Providence Rotary Club Presentation "Cosmic Perspective"
- 2/16/2024 Ballantyne Rotary Club Presentation: "James Webb Space Telescope"

On Deck

- 4/15/2024 Shepard's Center Presentation Cosmic Perspective"
- 4/23/2024 UNC Charlotte Mike Menzel, Systems Engineer James Webb Space Telescope
- TBD Catawba Land Conservancy Star Party
- TBD Food Lion Elementary Education Program

Ken Steiner
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 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



- Item 23-003-R1:** **Celestron Nexstar 130SLT**, Computerized telescope (Dobsonian) – NEW IN THE BOX, never unpacked. Current Amazon price is \$599. 1.25" Barlow lens included. PRICE - ~~\$550~~ **MAKE ME AN OFFER I CAN'T REFUSE!**
- James Foreman, jforeman@charlestonmgt.com



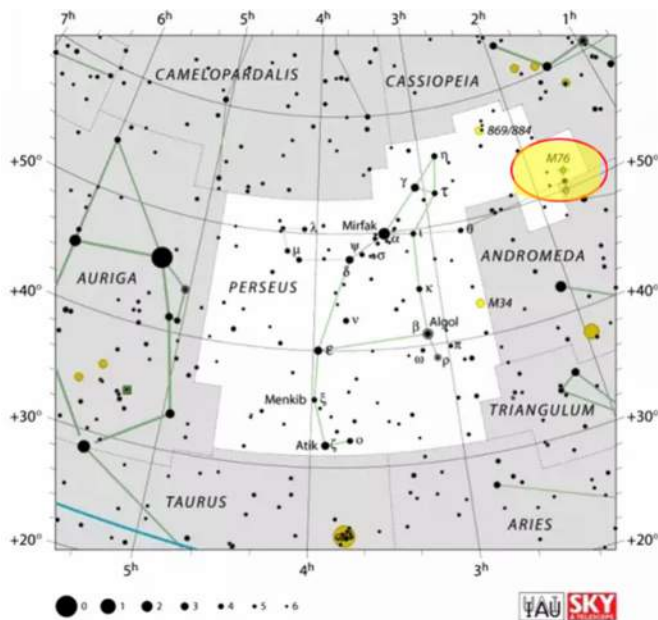
Orion Skyquest XTg GoTo Dobsonian, 12" – XT12g – (out of production now) NEW AND NEVER USED. On this one, I assembled the base to make it easier to store and move the tube around, but the tube and its internals have never been assembled. I built a platform with casters to move the scope around, and I also purchased a 12V sealed rechargeable battery (\$20 on Amazon) to power the electronics. There is also a telephone adapter (Celestron NexYZ - \$54 on Amazon) to fit over the eyepiece outlet. Bought the scope on Amazon several years ago for \$1795. PRICE - ~~\$1750~~ **WOULD REALLY LIKE TO SELL – MAKE ME AN OFFER!**

- James Foreman, jforeman@charlestonmgt.com



The Night Sky in January 2024

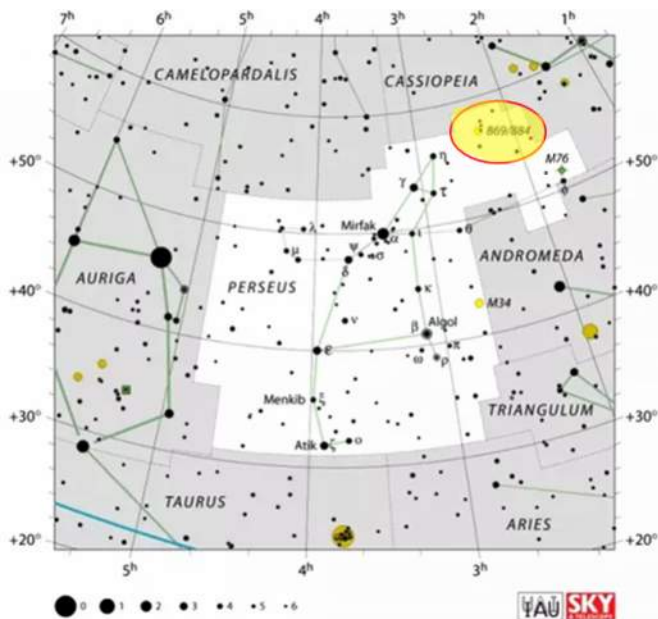
Perseus, M76



Most planetary nebulae appear as rings or disks, but a few of them have an irregular shape. The best example of this type of planetaries is **M76** (the Little Dumbbell Nebula), lying in the constellation Perseus at a distance of roughly 3,600 light-years.

At magnitude 12.2 **M76** is the faintest object in the Messier catalog, but you can see it even with a 2.4-inch telescope as an elongated patch that is 64" across and runs northeast-southwest. Larger telescopes and high magnification show some fainter areas of nebulosity at each end of the nebula, forming the classic shape from photos. With an OIII filter still more nebulosity is apparent on both sides, and especially beyond and south of the fainter northeast lobe.

Perseus, NGC 869 & NGC 884



... also known as h and Chi Persei, are two of the finest star clusters in the sky. This splendid group contains some of the most brilliant stars known and is visible with the naked eye as a hazy patch between Cassiopeia's W and the pointed top of Perseus. It is believed that this **Double Cluster in Perseus** has been known since pre-historical times, but was first catalogued only about 150 BC by the Greek astronomer Hipparchos. He referred to it as a "nebula" or "cloudy spot", one of the half dozen then recognized. The true nature of such objects remained a mystery until the invention of the telescope in the early 1600's. Binoculars show each of the clusters to have over a hundred stars, with the westernmost, **NGC 869**, appearing more compact. The two clusters cover an area two times the size of a Full Moon, with **NGC 869** being the brighter and richer of the pair.

Perseus Constellation Maps courtesy of IAU and Sky&Telescope, <https://www.constellation-guide.com/constellation-map/northern-constellations/>

We would like to acknowledge the content for this report was edited from information courtesy of NightSkyInfo, www.nightskyinfo.com/archive

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

If you would like to download a map of each month's night sky, use this link, <https://www.skymaps.com/skymaps/tesmn2308.pdf> 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:

Memorial Designations

One way to honor those who have passed on is to designate memorial gifts 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

President	Jim Gaiser	president@charlotteastronomers.org
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