



Charlotte Amateur Astronomers Club
www.charlotteastronomers.org

CAAC April 2024 Meeting

<p><u>Next Meeting:</u> Friday April 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 <i>Or Zoom web conference link (See newsletter info below)</i></p>
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Extreme Space Weather and the Habitability of Extrasolar Planets

Establishing what criteria define habitability is essential for determining the potential for life outside the Solar System. Traditionally, a planet is considered habitable if it is orbiting within the circumstellar region that makes possible the existence of liquid water on the planet's surface. However, an equally important factor in determining habitability is the stability of a planet's atmosphere. Intense stellar magnetic activity, such as flares and wind, can erode the planet's atmosphere, leaving the planet uninhabitable. M dwarf stars are of particular interest as they are currently favoured as most likely to host habitable, nearby exoplanets. Yet the extreme magnetic activity observed for some M dwarf stars places some doubt on the ability of orbiting exoplanets to host life. Radio observations uniquely provide direct measurements of the magnetic field strengths associated with stars and planets. New wide-field, low frequency radio telescopes will probe a frequency regime that is mostly unexplored for many magnetically active stars and where exoplanets are expected to produce radio emission. Detection of both exoplanetary and stellar magnetic fields will allow us to better evaluate the habitability of planets other than the Earth.

Speaker: Dr. Christene Lynch

Dr. Christene Lynch (they/them) is an expert in astronomical radio data analysis and imaging. They did their PhD at the University of Iowa under Dr Robert Mutel. Christene's thesis focused on using highly sensitive radio telescopes to observe magnetically active low-mass stars in order to constrain the stellar magnetic properties. Christene's first postdoctoral position was at the University of Sydney, where they used low-frequency telescopes to study magnetic emissions from stars and exoplanets. Christene also worked on more general transients searches including follow up of gravitational wave events. They followed their stint in Sydney with a Postdoctoral Fellowship position at Curtin University where Christene worked with the Murchison Widefield Array Epoch of Reionisation group. Christene's main research involved building better foreground models used for calibration and source removal by the Epoch of Reionisation experiment.

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>

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,

The second Great North American solar eclipse in 7 years is behind us, what an event!!! Club members traveled far and wide to see this (normally) once in a lifetime event...so to have the opportunity to see two in a decade with nothing more than car travel has been really special. I'm sure there are stories to be told and photos to be exchanged at this month's club meeting, please plan to attend in person if you can. Vipul Thakkar, a former club member sent this to me where he and his son watched in Carbonale, IL.



Southern Star is 2+ weeks away as you read this, the registration period should have closed a few days ago. Since we aren't quite a sellout, we've extended registration until after the meeting on **Friday, April 19th**. It's too late to order tee shirts or hoodies, but we're still got a few beds available...so send me an e-mail at jegaiser@gmail.com if you're interested in joining us at Southern Star.

The leadership team is presenting a slate of candidates for officers of the club at the April meeting. As almost always happens, existing leaders roll off the executive committee and new members step up to fill the void. I wish to express my heartfelt thanks to Ken Steiner and Benton Kesler for their leadership this past year. It's not that they are disappearing, they're just redirecting their energy elsewhere.

Finally, if you are a regular visitor to our observatory in South Carolina (GHRO) then you know what a gem it is. If you've not visited recently, or you're a newer member, I urge you to come down and enjoy the relatively dark skies and utilize the club owned telescopes. With proper training under your belt, the club scopes are available to you anytime you want. From the 100mm Lunt H-alpha dedicated solar telescope to the 24" Newtonian (and 6 scopes in between), there is one that is sure to fit your needs. I can think of no other club that has the opportunities for viewing and/or photography as this one does.

Clear skies,

Jim
President, CAAC

SOUTHERN STAR



May 2-5, 2024

Wildacres Retreat

- Four fabulous speakers!
- Camaraderie with your astro friends!
- Great accommodations and food at Wildacres Retreat!
- Solar observing and night-time observing
DARK skies until moonrise (3:30 AM)!
- Wine and Cheese Reception and Ice Cream Social!
- Nature hike and planetarium show (optional)
- Door Prizes!
- Swap tables! Trade or sell your old stuff –
Trade or buy some new toys!
- Three nights: Adult 18+: \$310.00 (double occupancy)
Child 6-12: \$135.00
Child 3-5: \$100.00
Day Attendee: \$80.00
Adult single occupancy: \$400

Registration opens on February 12, 2024

Check our web site for registration details

charlotteastronomers.org/southern-star/



Dr. Barbara Becker

University of California at Irvine - Retired

*Johannes Kepler: Why Are the Heavens Such and Not Otherwise?

*Dispelling the Myth of the "Able Assistant":

Margaret Huggins's Contributions to the Rise of the New Astronomy



Dr. Judy Beck

University of North Carolina - Asheville

*Gravity's Greatest Hits

*Eclipses



Dr. Britt Lundgren

University of North Carolina - Asheville

*Time Domain and Multi-Messenger Astronomy

*Satellite Constellations



Dr. Yashashree Jadhav

Elon University

*Monsters on the Move: A Search for

Gravitationally Recoiling Supermassive Holes

*A Brief History of Ancient Asian Astronomy

<https://charlotteastronomers.org/southern-star/>



Secretary's Report:

1. **Register for 2024 Southern Star Conference!**

May 2-5 at Wildacres Retreat. We have four fabulous speakers lined up. Registration closes Friday, April 19th after the CAAC meeting. Please find event information and online registration at the CAAC website, <https://charlotteastronomers.org/southern-star/>

2. We will be casting votes for the slate of Board of Directors at this month's club meeting.

- Current active members with dues paid are eligible to vote. Individual membership has one vote and Family Membership has one vote.
- Members livestreaming via Zoom may vote via chat with their membership name.
- Members may cast nominations from the floor. The nominations shall be seconded to be carried and placed on the ballot.

3. 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.

4. Our gratitude to new joining members and to our renewing members. Your participation is greatly appreciated.

5. 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!

6. 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

7. 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.
8. 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.
9. 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.

10. 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 3/31/2024

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: 02/29/2024	\$9,705.03
2	Income: Dues and Fees Donations Southern Star Deposits	 \$355.00 \$57.12 \$15,695.00
3	Expenses: Monthly meeting GHRO Expenses GHRO Utilities (alarm, elec, internet) Service fee to accept credit cards	 \$431.66 \$455.00 \$201.90 \$9.34
4	Operating Fund Balance: 03/31/2024	\$24,714.25

Non-Operating Funds

Purpose: Administer gifts and donations for designated use.

1	Non-Operating Fund Balance: 02/29/2024 Scholarship Fund CAAC Self Insurance Fund Contingency Fund	 \$6,706.87 \$20,000.00 \$7,427.87
2	Income: Interest	 \$0.29
3	Expenses or Transfers:	\$0.00
4	Non-Operating Funds Balance: 03/31/2024 Scholarship Fund CAAC Self Insurance Fund Contingency Fund	 \$6,706.87 \$20,000.00 \$7,428.16

Scott Goforth
CAAC Treasurer

News from GHRO

1. The next **Star Party is Saturday, May 4th** beginning at dusk.
2. **Telescope training** for new members (and those wishing to get a review) will be held on **Saturday, May 11th**, beginning at **6:30 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.
3. We had a Scout Troop visit GHRO on Saturday, April 13th for an overnight stay. Special thanks to Phil Faust, Butch Phaneuf, Tom Blevins, Justin Peatross, Jim Craig, Aayush Bhatt, and Julia Logan for volunteering. We had a couple dozen scouts camping all over GHRO, enjoying visual observing with the club telescopes. Highlights of the evening were definitely Jupiter and the Moon, but a smaller group of scouts woke up at 4am with Phil to view the Milky Way. The weather was perfect for both camping and observing.
4. 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.
5. Please follow the posted startup and shutdown procedures for any club owned scopes. This helps other members when they go to use our equipment.
6. 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/>
7. 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.
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 2024 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	

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, Rick Bassham at ghro@charlotteastronomers.org.

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 April 2024

Since last meeting:

- 3/23 UNC Charlotte, Mike Menzel, Systems Engineer for James Webb Space Telescope
 - Public Presentation co-sponsored by CAAC and UNC Charlotte.
- 3/30 Matthews Library Solar Presentation and observing.
- 4/3 Southminister Retirement, presentation "Solar Eclipse".

Scheduled:

- 4/13 Cornelius Park, Solar Observing and evening Star Party
 - Will need solar and evening scopes.
- 4/15 Shepherd's Center of Charlotte, presentation "Cosmic Perspective".

On Deck

- TBD Catawba Star Party.

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



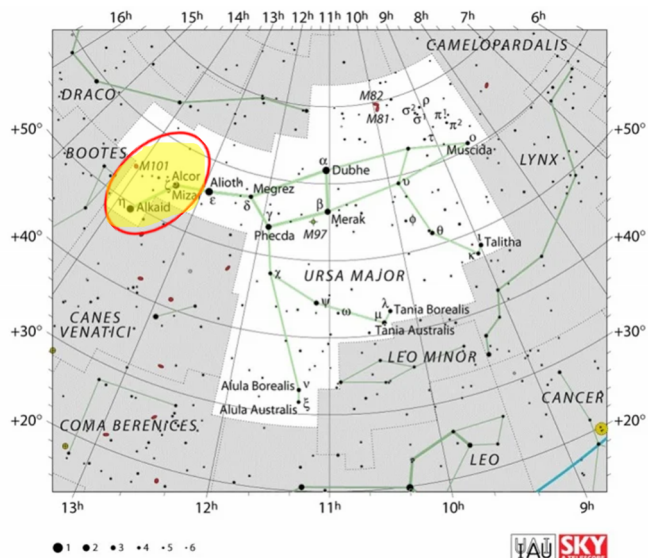
Orion Skyquest XTg GoTo Dobsonian, 12" – XT12g – (out of production now) NEW AND NEVER USED. On this one, I assembled the base to make it easier to store and move the tube around, but the tube and its internals have never been assembled. I built a platform with casters to move the scope around, and I 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



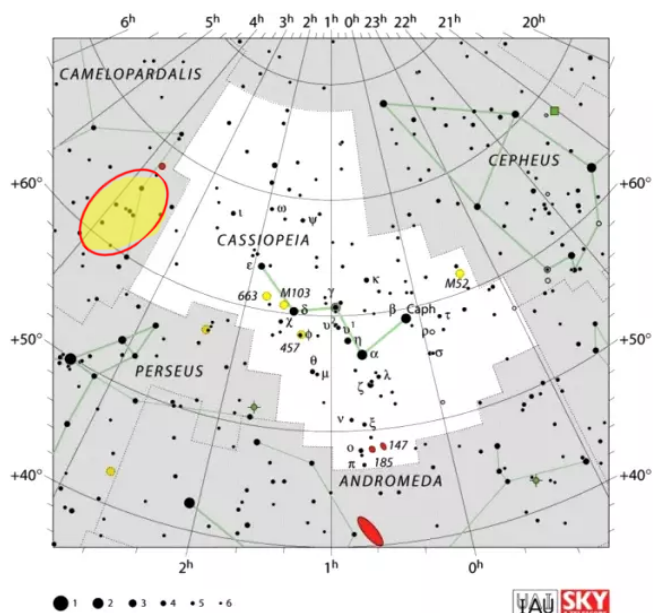
The Night Sky in April 2024

Ursa Major: M101



M101 is a bright galaxy in Ursa Major, located 24 million light years from Earth. To find it, center your attention on Mizar, the middle star in the handle of the Big Dipper. Looking through your finder scope shift from Mizar to nearby Alcor, then two degrees farther east until you come to 81 Ursae Majoris, the westernmost member of a string of four 5th-magnitude stars. Follow the string to 86 Ursae Majoris, marking the eastern tip. From there look to the north for three 7th-magnitude stars set in a right triangle. **M101** lies just east of the midpoint along the triangle's hypotenuse.

Kemble's Cascade



Of all the northern circumpolar constellations, Camelopardalis is the least distinct. It was created by the German astronomer Jakob Bartsch in 1624 a giraffe.

Step outside on a clear night and aim your binoculars at a point halfway between Polaris and Capella, then shift about one binocular field (7°) toward Alpha Persei. You should see a long string of stars measuring about 3° in extent, popularly known as **Kemble's Cascade**.

Lucian Kemble, a Franciscan monk from Alberta, Canada, chanced upon this cluster in the late 1970s while observing with 7×35 binoculars. He described it as "a beautiful cascade of faint stars tumbling from the northwest down to the open

cluster NGC 1502". This striking stellar arrangement is composed of about 20 stars, mostly 9th-magnitude, with a lone 5th-magnitude sun about midway.

Ursa Major and Cassiopeia 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, *Please note that NightSkyInfo has merged with Starlust.org and the original NightSkyInfo content has been migrated to the new site, Tom Urbain (Starlust.org) Acquire NightSkyInfo.com

We welcome and encourage our CAAC members to come and visit the **GHRO Observatory** to enjoy, learn, and observe these and other 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:

Life Insurance

If you retain any control over the policy, no income tax deduction is allowed; however, if the CAAC Stewardship Foundation is named both the sole owner and beneficiary of a policy, you may receive an immediate charitable deduction for the lesser of the policy's fair market value or the net premiums paid. Additional premiums that you pay may also be tax deductible.

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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