



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

## Parallax, Standard Candles, And Distance Measurements In Our Galaxy And Beyond

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Measuring distance to objects outside our solar system is a challenging endeavor at best, impossible at worst. There's not a tape measure long enough, so other methods of measuring distances will be discussed and how we can extend measurement from one domain (light years) to another (billions of light years).

**Speaker:** Dr. Jim Gaiser

Dr. Jim Gaiser earned his Bachelor's degree in Physics in 1976 and followed that with a Masters and PhD in Atomic physics from Auburn in 1981. After a stint as a physics Professor at East Carolina University in the 80's, where he taught both physics and astronomy, he transitioned into Medical Physics. He is currently a clinical medical physicist with Varian – Advanced Oncology Solutions. His lifelong interest in astronomy began when he looked up to see Echo I in 1961. His first telescope was a 75mm, f15 Unitron refractor which has just been refurbished by Tom Blevins...where his grandchildren will enjoy it. His astronomical interests include asteroid occultations and astrophotography.



<p><b><u>Next Meeting:</u></b> Friday August 16th, 2024</p> <p><b><u>Time:</u></b> 7pm ET</p>	<p><b><u>Place:</u></b> <i>Myers Park Baptist Church Education Building – Shalom Hall (Basement)</i> <i>Or Zoom Virtual Meeting</i> (See info on next page)</p>	<p><b><u>Address:</u></b> 1900 Queens Road Charlotte, NC 28207</p>
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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>

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>

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## From the President:

Greetings Friends,

The peak of the Perseid meteor shower has come and gone...unnoticed by anyone who tried to watch from GHRO last Sunday evening. Mostly cloudy skies with sucker holes that would come and go, at times it was even difficult to find the setting moon. By the time I returned to Mooresville, even the sucker holes had given up to complete overcast. Next year will have a waxing gibbous moon all night, but 2026 brings a new moon to the peak of the shower. Fingers crossed for clear skies in 2 years!

Fall is around the corner, and with it is the return of the gas giants to the evening sky, plan your activities around seeing these objects in all their glory. Jupiter is at opposition in mid-September, Saturn will be low in the south with its rings almost in the plane of the earth's orbit...could be tough to see them. Uranus is always fun, try your hand.

Southern Star 2025 will be here before you know it, the planning starts next month. We are currently looking for members to help with planning and speaker suggestions for this outstanding conference. Please send an e-mail to [jegaiser@gmail.com](mailto:jegaiser@gmail.com) if you'd like to help.

As I mentioned in the June newsletter, CAAC offers a scholarship for college students with the only requirement is that you intend to study physics, astronomy or similarly themed program in the fall at an accredited college or university. We have received no applications at this time, so If you're a new student or already studying one of these topics, feel free to apply. Send an e-mail to [jegaiser@gmail.com](mailto:jegaiser@gmail.com) to begin your application. I look forward to hearing from you.

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Clear skies,

Jim  
President, CAAC

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## Secretary's Report:

1. The 2024 CAAC annual membership:
  - 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](mailto:caac-slack@jamieandamy.com)

If you run into issues signing up, email Jamie at [caac-slack@jamieandamy.com](mailto: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 7/31/2024

### 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	<b>Operating Fund Balance: 06/30/2024</b>	<b>\$11,499.27</b>
2	<b>Income:</b> Dues and Fees	\$105.00
3	<b>Expenses:</b> Monthly meeting GHRO Utilities (alarm, elec, internet) GHRO Pest treatment GHRO Maintenance Southern Star Expense Service fee to accept credit cards	\$337.98 \$141.90 \$146.00 \$184.51 \$57.40 \$1.91
4	<b>Operating Fund Balance: 07/31/2024</b>	<b>\$10,734.57</b>

### Non-Operating Funds

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

1	<b>Non-Operating Fund Balance: 06/30/2024</b> Scholarship Fund CAAC Self Insurance Fund Contingency Fund	\$6,706.87 \$20,000.00 \$7,429.01
2	<b>Income:</b> Interest	\$0.29
3	<b>Expenses or Transfers:</b>	\$0.00
4	<b>Non-Operating Funds Balance: 07/31/2024</b> Scholarship Fund CAAC Self Insurance Fund Contingency Fund	\$6,706.87 \$20,000.00 \$7,429.30

Scott Goforth  
CAAC Treasurer

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## News from GHRO

1. The next **Star Party is Saturday, September 7th** beginning at dusk.
2. **Telescope training** for new members (and those wishing to get a review) will be held on **Saturday, September 14th**, beginning at 5:30 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. I am starting to plan for new pads for members now. If you have an interest in your own pad at GHRO, please reach out and make sure I have you on my list. Please do this even if you have already talked to me about it.
4. If you have a pad or building at GHRO that you are no longer using, please consider selling to another member or donating it back to the club. We have a large number of people interested in their own pads at the observatory. Please reach out to Rick Bassham if you are interested in giving up or selling your pad or building.
5. 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.
6. Please follow the posted startup and shutdown procedures for any club owned scopes. This helps other members when they go to use our equipment.
7. 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/>
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](mailto: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](mailto:ghro@charlotteastronomers.org).

Rick Bassham  
CAAC Observatory Director



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## **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.

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## CAAC Outreach Report August 2024

### Scheduled:

We have two outreach events.

**8/17** A Solar event on the morning August 17<sup>th</sup> at the Stallings Municipal Park in conjunction with the Stallings Farmers Market. There should be a good crowd at this event.

The event is at the Stallings Farmers Market

[340 Stallings Rd.](#)

[Stallings, NC 28108](#)

We need 3-4 volunteers, but the more the merrier, to assist with Solar Observing and man a brochure table for the Club. Setup time is supposed to be 7:30 a.m.

Event runs from 8:00 to Noon.

There is easy access parking at the site. Please note there is no power at the site.

Please let me know if you would like to volunteer, [gtblevins319@gmail.com](mailto:gtblevins319@gmail.com)

**9/13** Star Party  
Sept. 13 at Patriots STEM Elementary School  
[1510 Holden Ave. S.W.](#)  
[Concord, NC 28205](#)

Setup starts at 7:00 P.M.

Time 8:00 until 10:00 PM

Clear Skies,

Tom Blevins  
CAAC Public Outreach Coordinator

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## 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](mailto:rtclemen@gmail.com)



- Item 24-002:** *Meade 8" LX200GPS Field Tripod w/ 2" steel legs, in very good condition*, for sale in Charlotte

Asking \$75. Can be picked up in Charlotte or other arrangements may be accommodated, contact:

- Steve Deskevich, [Marshbum@gmail.com](mailto:Marshbum@gmail.com)



- Item 24-003:** *Meade 8" LX200GPS Fork Mount With AC Power Supply, Hand Controller And Serial Cable that creates connection with PC*, for parts in Charlotte
- LX200GPS Fork Mount (very good condition)

- 12V 2.5amp power adaptor
- AutoStar II hand controller (updated to latest firmware for GPS fix)
- Meade 8x50mm finder scope and mounting bracket
- Serial cable for connection from LX200GPS fork mount to PC



Offering for parts, \$0. Can be picked up in Charlotte or other arrangements may be accommodated, contact:

- Steve Deskevich, [Marshbum@gmail.com](mailto:Marshbum@gmail.com)

**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](mailto: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](mailto: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



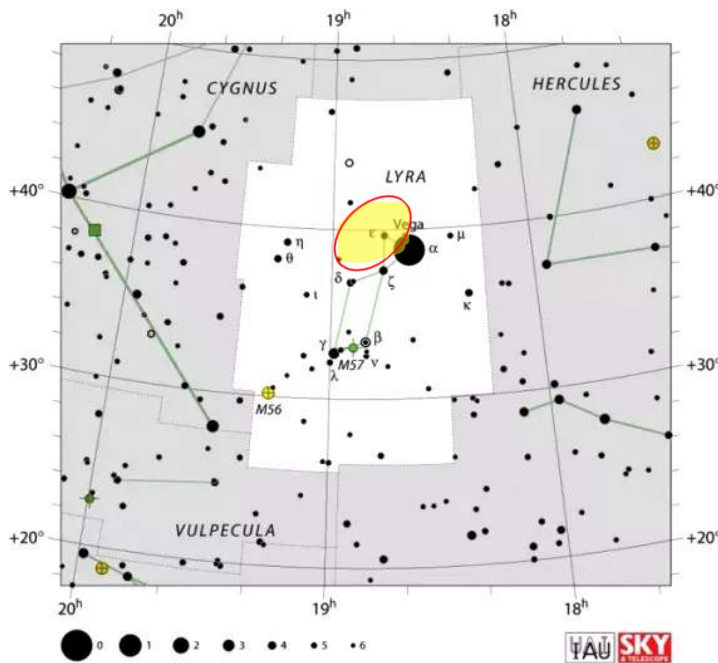
**Item 23-003-R1:** *Celestron Nexstar 130SLT*, Computerized telescope (Dobsonian) – NEW IN THE BOX, never unpacked. Current Amazon price is \$599. 1.25" Barlow lens included. PRICE - \$550 **MAKE ME AN OFFER I CAN'T REFUSE!**

- James Foreman, [jforeman@charlestonmgt.com](mailto:jforeman@charlestonmgt.com)



# The Night Sky in August 2024

## Epsilon Lyrae



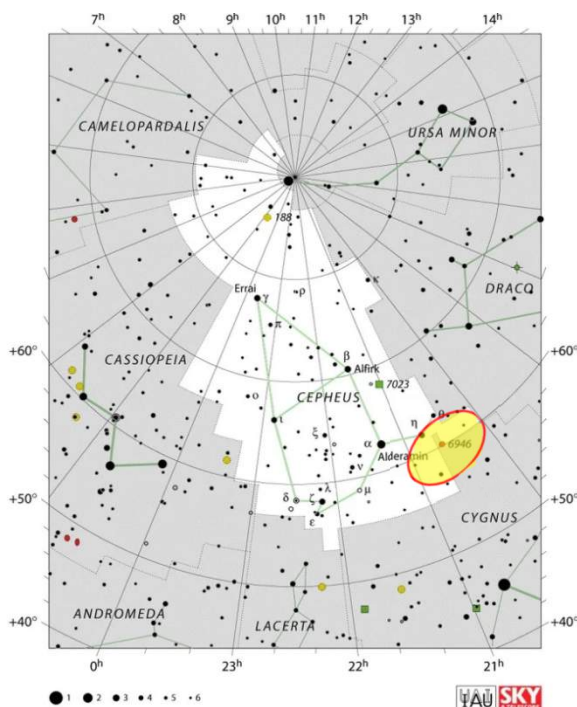
One excellent example of a multiple star is **Epsilon Lyrae**, a quadruple system commonly known as the *Double-Double*.

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



**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.

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

*Lyra and Cepheus 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*

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

### 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

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### CAAC CONTACTS

President	Jim Gaiser	<a href="mailto:president@charlotteastronomers.org">president@charlotteastronomers.org</a>
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