



Charlotte Amateur Astronomers Club
www.charlotteastronomers.org

CAAC February 2024 Meeting

<p>Next Meeting: Friday February 16th, 2024</p> <p>Time: 7pm ET</p>	<p>Place: <i>Myers Park Baptist Church Education Building – Shalom Hall (Basement) Or Zoom Virtual Meeting</i></p> <p>Address: 1900 Queens Road Charlotte, NC 28207 <i>Or Zoom web conference link (See newsletter info below)</i></p>
---	--

MWU! – Astrophotography of the Multiwavelength Universe

A consortium of educators, led by a team of astronomers at UNC Chapel Hill, Furman University and Central Michigan University have been developing a new program of astronomy laboratory activities for undergraduates for half a decade. The first initiative, Our Place in Space (OPIS!), is mostly composed of laboratory activities for Introductory Astronomy courses, using UNC-CH's Skynet Robotic Telescope Network. For the past two years, a second initiative, Astrophotography of the Multiwavelength Universe – MWU! brings more advanced activities that include a series of optical and radio astronomy projects that target students who have already completed at least one introductory astronomy course that are at a vital point in their academic career when they make the choice to focus their education on a pathway toward a post-baccalaureate career in STEM. In this talk, I will present/demonstrate some of the MWU! laboratory modules that have been created so far, and how they use color information from large- and narrow-band filtered images, and even sound, to make physical interpretations of astronomical objects.

Speaker: Dr. David Moffett



David Moffett is a Professor and the Chair of the Physics Department at Furman University at Greenville, SC. He teaches courses in Introductory Physics and Astronomy, Classical Mechanics, and Electromagnetic Theory. In addition to teaching at Furman, Moffett collaborates with faculty from the University of North Carolina at Chapel Hill to host the annual Educational Research In Radio Astronomy (ERIRA) workshop at the National Radio Astronomy Observatory in Greenbank, WV.

Dr. Moffett continues to perform radio astronomical observations of supernova remnants (SNRs), and is currently working with Furman students to study the emission properties of two Galactic SNRs, G28 and G32, using the Very Large Array (New Mexico) and the Green Bank Telescope (West Virginia).

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,

As Leo rises in the east and Orion reigns supreme, it is time to look ahead to two spring events that will be the talk of the town for quite a while. First is the total solar eclipse of 2024, passing over the continental United States from Texas to Maine. The Carolinas will see a partial phase, so most of us will be traveling. I will be off to Arkansas, as totality passes through my brother's backyard in Conway, AR! As always, if you are traveling to see totality (the only way to view, IMHO) be prepared for clouds...that is...be mobile. Use the proper eye protection for each phase of the eclipse and happy viewing.

The second spring event is 35th anniversary **Southern Star**, the astronomical conference sponsored by this club. We are proud to announce that registration is now open to all members. This 4-day, 3-night event is the premier astronomical conference on the east coast, bringing together amateur astronomers from Georgia, Tennessee, Virginia and both of the Carolinas. The conference opens at 4 PM on May 2, with the first of 8 scheduled talks beginning after dinner. The talks this year feature a mix of history and research and feature speakers exclusively from North Carolina this year. The conference concludes on Sunday morning, May 5th at the conclusion of a Q&A session with this year's speakers.

A one-page summary of the conference and an introduction to our speakers is the next page of this newsletter.

Visit our website at <https://charlotteastronomers.org/southern-star/> and download the registration form, fill it in and send your check to the address shown on page two of the registration form. We anticipate a sell out this year, so register early so you can be ensured a seat in the dining hall!!!

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 opens Monday, February 12. Please find event information and online registration at the CAAC website, <https://charlotteastronomers.org/southern-star/>

2. 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.

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

4. 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!

5. 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

6. 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.
7. 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.
 8. 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.

9. 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](#)

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 1/31/2024

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: 12/31/2023	\$9,032.44
2	Income: Dues and Fees Donations	 \$820.00 \$338.00
3	Expenses: Southern Star Monthly meeting GHRO Utilities (alarm, elec, internet) GHRO Facility Service fee to accept credit cards	 \$162.35 \$390.23 \$333.90 \$112.00 \$23.92
4	Operating Fund Balance: 01/31/2024	\$9,168.04

Non-Operating Funds

Purpose: Administer gifts and donations for designated use.

1	Non-Operating Fund Balance: 12/31/2023 Scholarship Fund CAAC Self Insurance Fund Contingency Fund	 \$6,706.87 \$20,000.00 \$7,426.66
2	Income: Interest	 \$0.94
3	Expenses or Transfers:	 \$0.00
4	Non-Operating Funds Balance: 01/31/2024 Scholarship Fund CAAC Self Insurance Fund Contingency Fund	 \$6,706.87 \$20,000.00 \$7,427.60

Scott Goforth
CAAC Treasurer

News from GHRO

1. The next **Star Party is Saturday, March 9th** beginning at dusk.
2. Telescope training for new members (and those wishing to get a review) will be held on Saturday, February 17th, beginning at 5:00 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 have a Scout Troop scheduled to visit GHRO on Saturday, March 16th for an overnight stay. Anyone interested in volunteering to run telescopes for the evening, please reach out to me.
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. 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.
8. 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.
9. 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).
10. 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.

11. 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 February 2024

Since last meeting:

- 2/10 Telescope Workshop



15 new users of telescopes attended the Telescope Workshop organized by Benton Kesler. Assisting Benton were: Jim Gaiser, Jim Carroll, Jim Craig and Scott Goforth.

- 2/15 Providence Rotary Club, presentation “Cosmic Perspective”.
- 2/16 Ballantyne Rotary Club, presentation “James Webb Space Telescope”.

Scheduled:

- 3/6 Matthews Glen Retirement, presentation “Saving the Dark Skies”.
- 3/23 UNC Charlotte, Mike Menzel, Systems Engineer for James Webb Space Telescope.
 - Public Presentation co-sponsored by CAAC and UNC Charlotte.
- 3/25 Carmel Hills Retirement, presentation “Cosmic Perspective” and “Solar Eclipse”.

On Deck

- 4/3 Southminister Retirement, presentation “Solar Eclipse”.
- 4/13 Cornelius Park, Solar Observing and evening Star Party.
- 4/15 Shepherd’s Center of Charlotte, presentation “Cosmic Perspective”.
- 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



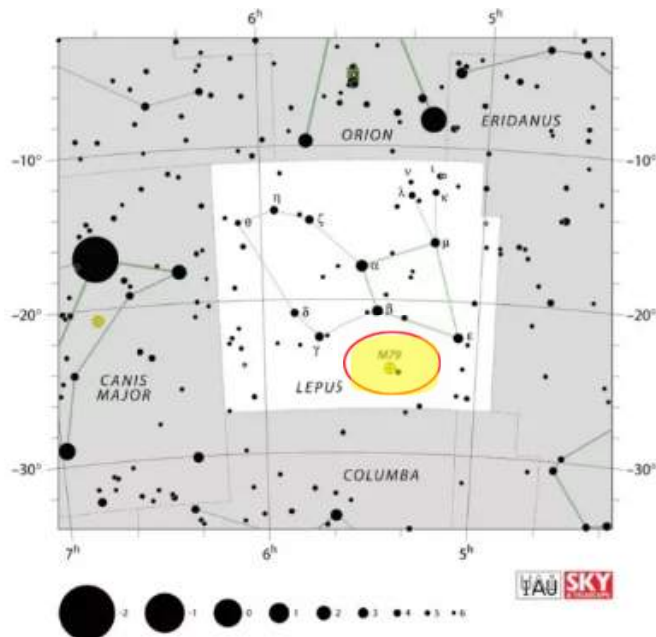
- Orion Skyquest XTg GoTo Dobsonian**, 12" – XT12g – (out of production now) NEW AND NEVER USED. On this one, I assembled the base to make it easier to store and move the tube around, but the tube and its internals have never been assembled. I built a platform with casters to move the scope around, and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



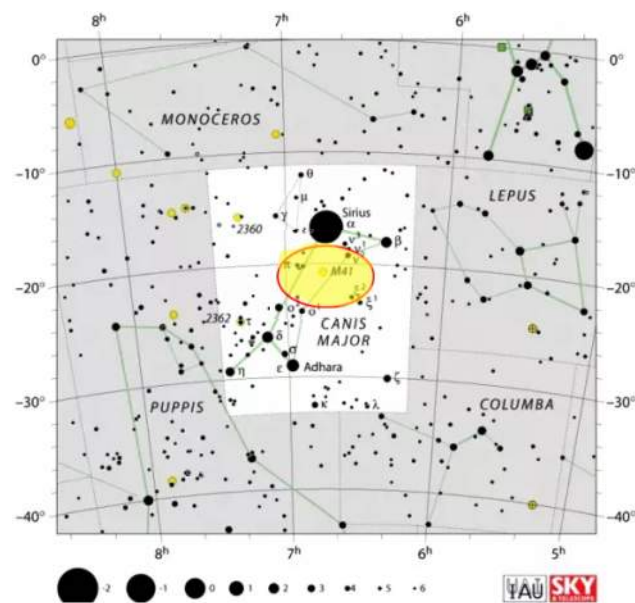
The Night Sky in February 2024

Lepus, M79



M79 is a globular cluster in the constellation Lepus. It was discovered by Pierre Méchain in 1780 and is at a distance of about 42,000 light years away from Earth. It is thought that M79 is not native to the Milky Way galaxy at all, but instead to the putative Canis Major Dwarf Galaxy, which is currently experiencing a very close encounter with the Milky Way. This is, however, a contentious subject as astronomers are still debating the nature of the Canis Major dwarf galaxy itself.

Canis Major, M41



M41 is one of the deep sky showpieces of winter, a beautiful open star cluster first documented in 320 B.C. by Aristotle. Finding it is extremely easy: center Sirius in your eyepiece's field and from here move the telescope four degrees south. However, before you do this first take a quick look at Sirius. It is the brightest star in the night sky, a hot sun 1.8 times as large and 24 times as luminous as our Sun. It is also the closest naked-eye star visible from mid-northern latitudes, located just 8.6 light-years away.

Shining at magnitude 4.6, **M41** is visible with the naked-eye on clear nights and is partially resolvable into stars with binoculars. The cluster contains about 25 bright stars and many fainter ones scattered in a field of 30 arcminutes, as

large as that covered by the Full Moon. Because it has such a large angular diameter **M41** is best seen with a wide-field, low-power eyepiece. While most of the cluster is composed of blue and white (younger) stars, look for a deep orange-red star near the center.

Lepus and Canis Major 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 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:

Cash

A gift of cash is simple, has immediate impact, and provides tax savings due to the charitable deduction that you can receive. The easiest way to make an outright gift is to write a check 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
Vice President	Benton Kesler	vicepresident@charlotteastronomers.org
Treasurer	Scott Goforth	treasurer@charlotteastronomers.org
Secretary	My Do	info@charlotteastronomers.org
Observatory Director	Rick Bassham	ghro@charlotteastronomers.org
Public Outreach Coordinator	Ken Steiner	publicoutreach@charlotteastronomers.org
Southern Star	Jim Gaiser	southernstar@charlotteastronomers.org