THE

FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

Vol. 30, No. 9 September 2026

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Club Calendar:

FRAC Meeting:
We will have our club meeting on September 10, 2026, 7:30pm at the UGA Gardens in Griffin and on Zoom.

Carlos Flores will give a presentation on basic astrophotography using cell phones, tablets, DSLR cameras, etc. Mark Sutton will continue his constellation observing series by taking us through Capricorn.

Public Observing Events:
In September we have one public event scheduled, and one “maybe”.

We will be at Indian Springs on Friday, September 4, and in case of clouds we will have a weather make-up date for Saturday, September 5. The event starts at 8pm.

On September 18th - we may add a public viewing in Pike County as Fayette canceled. Waiting on confirmation, time and location TBD.

FRAC Observing Events:
Our club observing weekend at Joe Kurz will be on September 11th and 12th from sunset until whenever.

The gate is now closed, so please be sure to leave the gate as you find it when the last person leaves for the night.

The lock code is 9321.

Please keep checking your email for updates regarding club events.

President’s Message:

September 22, at 8:06 pm, we celebrate the Autumnal Equinox. At that time, the plane of the equator of the sun (the ecliptic) intersects the plane of the equator of the earth (the celestial equator). This marks the beginning of autumn here in the northern hemisphere. Being an equinox, the day and night should both be 12 hours long, but that is not really the case. In Atlanta, we have to wait until September 26th to see this 12-hour equilibrium. Why is that?

The sun is not a single point of light but rather an apparent disc of light. Sunrise is considered when the polar limb of the sun first appears above the horizon. Conversely, sunset is when that same polar limb disappears below the horizon in the evening. The apparent radius of the sun is 16 arcminutes. Additionally, with atmospheric refraction of approximately 34 arcminutes, we first see the sun rise when its center is 50 arcminutes below the horizon. Similarly, sunset occurs with the solar center 50 arcminutes below the horizon.

Factoring in all this means the two days with equal day and night fall before the equinox in the spring and after the equinox in the fall. This year we'll enjoy our 12-hour day and 12-hour night on September 26th.

Most importantly for us amateur astronomers, more hours of darkness to have our fun under the stars!

Clear skies,
Larry

Vice-President's Ramblings
Well, I'm back from Colorado, a bit earlier than expected. My friend's motorcycle had an engine mount bolt snap and it ended our trip a few days early. But we did get in some great rides up until then. Seeing the wilderness of Colorado and Utah from a motorcycle is amazing.

Since I was going out to the middle of nowhere in Colorado, next to what turned out to be a mostly dry reservoir, I decided to take my SeeStar. As expected, when it was clear the skies were spectacular. I saw parts of the Milky Way I'd never seen before, and got some decent deep space and moon pics.

But what I really had fun with was using the SeeStar for scenery during the day. If you have not tried it out, you really should. With a bit of patience and a lot of the 'slow joystick' mode, I got some really decent shots. My favorite is below.

In addition to this yawning eagle perched on the opposite shore of our dry lake, I photographed deer, ducks, wildflowers, mountains, sunsets, and even a pair of eagles later on. Daytime photography with the SeeStar is a lot of fun - you should try it out. As always, be aware of the position of the sun, and use your solar filter if you intend on doing solar photography.

Sean

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FRAC T-Shirts
FRAC T-shirts are still available! They are $20 at all FRAC gatherings.

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FRAC meeting:
August 13, 2026, at 7:30pm at the UGA Gardens in Griffin and on Zoom.

19 members joined us at the meeting at the Garden building: Sean Neckel, Brennan and Chris Czock, Eugene Rush, King Davis, Carmen and Wade Simmons, Carlos Flores, Alfred McClure, Tom Partin, Tom Moore, Teri and Mark Sutton, George Ruff, Dave and Rosanne Stone, John Cruickshank, Alan Pryor, and Ben Barker.

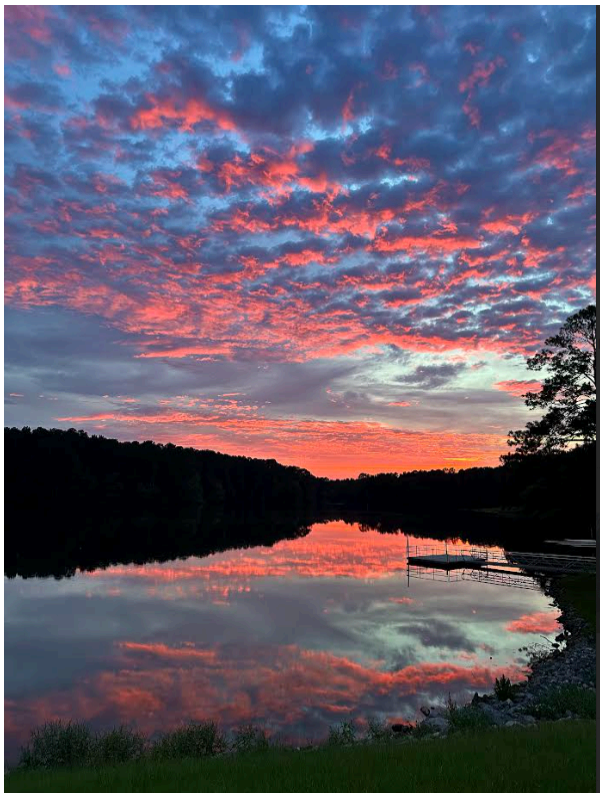
5 club members joined us on Zoom: Scott Hasson, Chelsea Neckel, Ann Angelheart, Wayne White, and Brent Summers.

Topics Discussed:

- Alan Pryor gave a presentation titled, "It's A Star's Life", explaining different types of stars, their life cycles, and how the elements are formed.
- Mark Sutton gave a presentation on Sagittarius and objects to observe within the constellation.

FRAC Observings:
The club held its monthly observing event at Joe Kurz WMA on Friday, August 7th and Saturday, August 8th.

Public Observing Events:
In August we had two public events.
On August 14, Tom and Brittany Partin and George Ruff hosted about 30 guests at the Indian Springs State Park.



Sunset at Indian Springs State Park

The next weekend, on August 22, Tom and Brittany Partin, George Ruff, Dave and Rosanne Stone, King Davis, Chris and Brennan Czock, and Stacy Spear showed the stars to approximately 30 guests at Sprewell Bluff Park in Thomaston.

FRAC members setting up for an evening at Sprewell Bluff Park

Welcome New Members!
In August, Stacy Spear and the Hoffman family (Mark Jr, Susan, Mark III, Robert, Sarah Rose, and Dylan) joined the club. Welcome to FRAC!

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Solar System Observing June 2026:
Mercury is visible just before dawn in the eastern sky.
Venus is visible in the western sky just after sunset.
Earth is slowing down, but not enough to really notice.
Mars is visible starting around 2am until dawn.
Jupiter is visible in the predawn sky starting around 5am.
Saturn is visible starting around 10pm until dawn.
Uranus is visible through a telescope starting around 11:30pm until dawn.
Neptune is also visible through a telescope, starting around 9:30pm until dawn.
Moon: LQ 9/5 New: 9/10 FQ: 9/18 Full 9/26

FYI - September 19th is International Observe the Moon Night. So, get out there and have a look. Get some pics of the first quarter moon if you can!
https://in-the-sky.org/

In the sky, September 2026
Venus is the dominant planet visible in the evening sky looking west after sundown. But swing your telescope around to the east and during the month of September, Saturn gradually becomes a prime target. Initially, Saturn rises at 10 pm and takes another hour to clear the atmospheric haze. But as the month progresses this gas giant comes into view earlier. The rings are tilted about 7.5° making for a spectacular view. Truly one of my favorites!
The summer triangle is directly overhead at dusk. The 3 stars forming this triangle, Altair, Vega, and Deneb, are some of the first visible stars in the evening sky. As the skies darken, Altair is the dominant star in the constellation Aquila, Vega is the dominant star in Lyra, and Deneb is the dominant star in Cygnus.
While you're observing the summer triangle, look for M57 the Ring Nebula in Lyra. Another good target is M27, the Dumbbell Nebula, closer to Altair and the constellation Aquila. Both of these are planetary nebulae, the consequence of giant red stars shedding their outer layers.

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Classifieds:
Ioptron GEM28EC for sale. Like new condition. Comes with 1.75 literoc tripod. Hardly used. Comes in case and all original accessories. $1700
ASIAir 32GB. Excellent condition. Comes with all original cables. $150
Contact Brian Kennedy at briankennedymail@gmail.com

Seestar S30, almost brand new in excellent condition. In its case with all accessories $250.00

Seestar S50 in excellent condition with case with original accessories, plus some added accessories $350.00
Contact Carlos Flores at cflores111@hotmail.com

If you have something you would like to buy, sell, or trade, email the specifics, including your contact information to stneckel@gmail.com

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Alan's Astrophotography Series - Part 1: General Telescope Optics and Characteristics

The diameter of the objective lens determines the best possible resolution you can get. A 4-inch scope can get twice the resolution of a 2-inch scope. This is true up to about 5 inches in diameter for Earth-based telescopes. At 5 inches (6 or 8 inches if it is an SCT) the atmospheric turbulence will typically limit your resolution.
For astrophotography the resolution is set by the arcseconds per pixel which will be discussed later. This is a function of the focal length, the camera pixel size and the limitation of the objective size. These will be discussed later.
If you are doing visual work the objective size determines the maximum possible magnification. You are limited to a magnification of 50 to 60 times the objective diameter in inches. This is true until you reach about 300X. Then the sky is limiting. At this point a larger objective won't deliver more magnification unless "seeing" is exceptionally good, but it will gather more light to reveal faint objects.
The greater the diameter of the objective, the more light you will gather. A 4-inch scope will gather 4 times more light than a 2-inch scope. For a bigger objective diameter, you can see fainter objects. If you are doing astrophotography, it means you need less exposure time to capture an image.
Now for the focal lengths. The longer the focal length, the more magnification (resolution) you get for a given eyepiece or camera. In other terms the arcseconds per pixel goes down (more resolution).
Camera Resolution in arcseconds/pixel = 206 x Pixel Size in microns / Focal Length in mm
Dawes Limit in arcseconds =116/Objective Diameter in mm
The larger of the two sets the limit.
In Georgia the sky usually limits you to a resolution of about 3 arcseconds/pixel. Therefore, the best pixel size is one that gives a resolution between .7 and 1.5 arcseconds per pixel. (1/4 to ½ of the sky limitation). One can go lower if you are on a mountain with stable skies because the sky will only limit you to about 2 arcseconds per pixel. This assumes your objective size gives a Dawes Limit that can handle these resolutions. If your arcseconds/pixel are too high the stars appear blocky. If too low, the details appear blurry, but that can be fixed. You can increase your effective pixel size by binning. Of course, you can change the focal length by using Focal Length Reducers or Barlow Lenses.
The field of view also decreases as the focal length increases.
At focal lengths of 200 or 300 mm the magnification is low enough so you can usually get by without any guiding depending on the mount quality and exposure length. In the 600 mm range you may need guiding, but if you are using a CMOS camera with 30 second to 1-minute exposures it may not be needed. At longer focal lengths you will need guiding.
The focal length directly impacts the focal ratio, which impacts the amount of light per pixel.
The focal ratio is the ratio of the focal length to the objective diameter. The lower the focal ratio, the more light you concentrate on a single pixel. For instance, a focal ratio of 4 will put 4 times more light on a pixel than a focal ratio of 8 if using the same camera (pixel size) and same scope diameter. Also, the lower the focal ratio, the harder it is to achieve focus. For example, the critical focus zone of an f/4 telescope is 1/4th that of an f/8 scope. (2 thousandths of an inch versus 8 thousandths of an inch). Therefore, focusing is more critical on scopes with lower focal ratios.
One thing to consider is that the focal plane of most telescopes is not a flat plane. It is more of a spherical surface. It is usually more pronounced on lower focal ratio scopes. Your camera has a flat sensor so what is in focus at the center may not be in focus at the edges. The solution is to use a field

flattener. However, some premium telescopes have a field flattener built-in.
You should check the documentation on the scope for the image circle. Just be sure it can illuminate the entire sensor of your camera.
You need to consider the available back focus of the scope when the focuser is fully drawn in. It needs to be long enough to accommodate the back focus of your camera and other equipment (filter wheel, off-axis guider, etc.). If it is too short then you will never achieve focus with your camera.
Finally, for long observing sessions you will need a dew heater for the major optical surfaces (objective, corrector plate and secondary mirror). Otherwise, your optical surfaces will dew up.

Next Month's Article: Scope Designs

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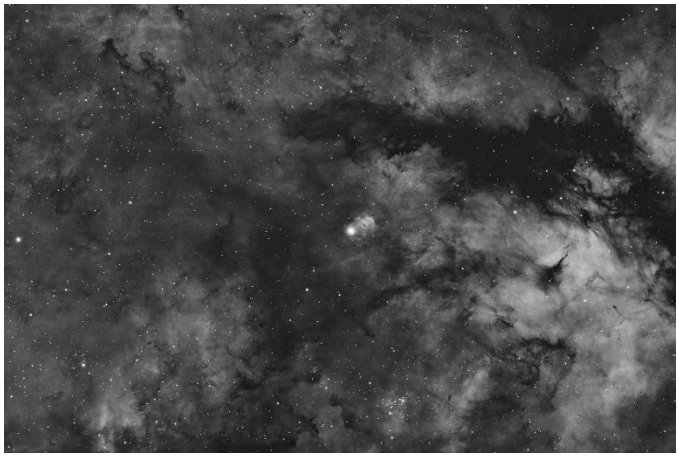


IC1318, Courtesy of Alan Pryor Photographed 7/29/26

IC 1318 or the Sadr Region is an emission nebula and H II region in Cygnus. It is easy to find. Just point a telescope at the central star of Cygnus's cross, Sadr. In very dark skies a 6-inch scope should reveal it, but an ultra-high contrast filter (UHC) is needed with low magnification. Of course, a 10-inch scope with the UHC filter would be much better.
The emission nebula also has a dark lane that appears to divide the nebula into two pieces. The nebula is believed to be 2000 to 5000 light-years away depending on which part of the nebula that you are looking at. It is also a star forming region. In fact, young newly born stars are the stars that furnish the radiation which excites the hydrogen and causes it to glow.
This photo was taken with a 3-nanometer hydrogen alpha filter on the night of a full moon. There were 25 3-minute exposures. The 3-nanometer filter was able to block all of the moon's glare. The equipment was a 5" refractor and a QHY600PH monochrome camera. A full-size image can be seen at IC1318.

The Eagle Nebula, Messier 16, Courtesy of Tom Partin
Skies cleared up and I was able to get out and take this photo of the Eagle Nebula (Messier 16). M16 is an emission nebula about 5,700 to 7,000 light years away in the constellation Serpens. If you zoom in you can see the "pillars of creation" made famous by the photograph by NASA's Hubble telescope.
Equipment: Askar SQA55, ZWO ASI585 Pro, Skywatcher GTI, ASI Air Mini, Svbony SV220 Dual-Band Nebula Filter, Svbony SV238 Off-axis Guider, ASI ASI120MM
Software: Siril, GraXpert
Data: 17 exposures at 300 seconds for just shy of 1.5 hours total.

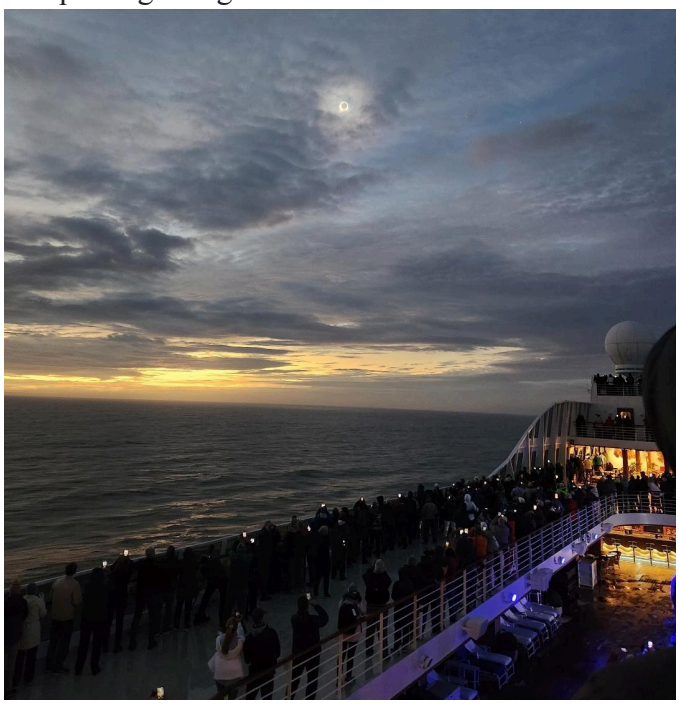
The Trifid Nebula (Messier 20), Courtesy of Sean Neckel

This astro pic of the Trifid Nebula was taken on August 19, 2026 from the Buckeye Reservoir near Paradox, CO using my SeeStar 50. After hearing Mark Sutton's presentation on Sagittarius, I decided to do a little exploring in the "Teapot". This is a stack of 126 10s exposures over the course of about 30 minutes.

The Trifid Nebula is actually 3 separate nebulae located approximately 5200 light years from Earth. The reddish-orange is an emission nebula, the blue-green is a reflection nebula, and the dark areas are dust lanes of a dark nebula that splits the Trifid into three distinct 'lobes', giving this nebula its name.

The Moon, Courtesy of Sean Neckel

Yes, two from me this month. I tried taking a photo of the moon each night, but the sky only cooperated for a few nights while I was there. This was taken on August 17, while the moon was approaching first quarter. I found that getting the SeeStar dialed in each night using the moon was helpful since I could set up and get aligned before it was dark.



Total Solar Eclipse, August 12, 2026 Courtesy of Larry Dove.

From Larry:

"Somewhere off the coast of Iceland. Look to the right of the sun and two points of light are Mercury and Jupiter! Venus was also visible during the eclipse but out of frame on this image."

Larry and Twila Dove, topside on the cruise ship before first contact. Hot mulled wine helped as the temperature dropped fast!

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