

THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT
RIVER ASTRONOMY CLUB

An Affiliate of the
Astronomical League

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Officers: President/Newsletter Editor, **Bill Warren**; (770)229-6108, warren7804@bellsouth.net; Vice President, **Larry Higgins**; Secretary-Treasurer, **Steve Bentley**.

Board of Directors: **Dwight Harness**; **Mike Stuart**; **Jessie Dasher**; and **Laura Harness**.

Facebook Coordinators, **Jessie Dasher** and **Laura Harness**; Alcor, **Carlos Flores**; Webmaster, **Tom Moore**; Observing Coordinator, **Dwight Harness**; NASA Contact, **Felix Luciano**.

Club mailing address: 1212 Everee Inn Rd., Griffin, GA 30224. Web page: www.flintriverastronomy.org.

Please notify **Bill Warren** if you have a change of home address, telephone no. or e-mail address.

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Club Calendar. **Fri., Jan. 4-5:** JKWMA observings (at dark); **Thurs., Jan. 10:** FRAC meeting (7:30 p.m., Rm. 305 Flynt Bldg., UGa-Griffin campus); **Fri.-Sat., Jan. 11-12:** JKWMA observings (at dark); **Thurs., Jan. 31:** Banks Stephens Middle School (Forsyth, GA) observing, 6:00 p.m.

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President's Message. **Dwight Harness** is working on some changes in our club observing schedule to try to increase attendance in 2013. We want to offer more opportunities for observings next year, but among other problems there's the fact that the gates at JKWMA are locked for roughly half the year when hunting is not in season.

Dwight sent a tentative observing schedule to **Tom Moore** to post on our FRAC calendar. Doubtless, there will be some changes made when Dwight gets the problems ironed out, but for now we've scheduled two observing weekends in January – **Fri.-Sat., Jan. 4th-5th** and **Fri.-Sat., Jan. 11th-12th**.

Dwight is working on a plan that might solve the locked gates problem without taxing the ranger's patience. If it works, we'll have year-round access to the site without the ranger having to unlock the gates for us.

Stay tuned.

-Bill Warren

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Last Month's Meeting/Activities. We had 30 members at our Christmas dinner party: **Charles "Prince of Darkness" Turner**; **Betty & Steve Bentley**; **Linda & Larry Higgins**; **Jayne & Greg Speer**; **Julie Avery & Sam Harrell**; **Aaron Calhoun**; **Andy Hasluem**; **Mike Stuart**; **Jane & Roger Brackett**; **Betty & Dwight Harness**; **Ben & Woody Jones**; **Ronny & Jessie Dasher**; **Bagitta & Chris Smallwood**; **Dr. Richard Schmude, Jr.**; **Olga & Carlos Flores**; **Stephen Ramsden**; **Deborah & Steven "Smitty" Smith**; and **Louise & Bill Warren**.

Sam, a teenager who's growing so fast you don't need time-lapse photography to

see it happening, wound up with about half a dozen door prizes, including one of the Grand Prizes, a nifty little Celestron FirstScope. Jessie won the other Grand Prize, a “Star Guy” cold-weather jacket that was donated by The Camera Bug’s **Tim Nix**.

Stephen Ramsden came bearing three really wonderful gifts: 500 pairs of solar sunglasses to the club to be given out at public observings -- and a powerpoint projector too, if you can believe it. Then, as if that were not enough, for his piece de resistance Stephen presented Carlos Flores with a Jon Wood Award that included a \$500 ccd camera.

Above Right: Stephen Ramsden in his Sun suit with wife **Natalie**.



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This ‘n That. Since you’re reading this, it’s safe to assume that the world didn’t end on Dec. 21st as predicted by the doomsayers who misinterpreted the Mayan calendar. That’s good news for everyone who was looking forward to Christmas, New Year’s and beyond, and bad news for those who thought that the ancient Mayans were somehow privy to information regarding

Earth’s demise that today’s scientists have overlooked.

At present, the next realistic threat to our planet from space will come in the year 2880 A.D., when asteroid **1950 DA** – which measures about $\frac{3}{4}$ mi. in dia. -- has a 1-in-300 chance of hitting the Earth.

***Sir Patrick’s Passing.** The passing of English astronomy guru **Sir Patrick Caldwell-Moore** on Dec. 9th at age 89 was an expected but nevertheless painful blow to the astronomical community.

Sir Patrick was, in the truest sense of the word, a giant. Through his long-running BBC television show, “The Sky At Night,” and through the hundreds of astronomy books he wrote or sponsored, Caldwell-Moore inspired countless millions of people worldwide to take up the hobby that he loved so dearly.

Despite having received no formal training in astronomy, “Sir Pat” became, through persistence and diligence, perhaps the 20th Century’s foremost spokesman for observational astronomy. Writer **Chris Lintott**, who co-authored some of Caldwell-Moore’s books, said, “Sir Patrick dedicated his life to talking about astronomy at any opportunity – not out of a desire to make a name for himself or to further an agenda, but because he thought the world would be a better place if he did so.”

Sir Patrick will be missed more than he could possibly imagine.

***Speaking of Sir Patrick:** he’s the only person ever to have met both **Orville Wright**, the pioneer of aviation, and **Neal Armstrong**, the first man to set foot on the **Moon**.

***The Jan. issue of *Astronomy* (pp. 57-59) has an article, “Will Comet ISON be a**

superstar?,” by **Michael E. Bakich**. ISON (Comet C/2012 S1) “may well become the brightest comet anyone alive has ever seen” after it reaches naked-eye status next November, according to Bakich. His fine article gives us a sneak preview of what might be in store for us. (Don’t worry, the comet won’t hit the Earth: the closest ISON will come to us is about 13 million miles.)

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Upcoming Meetings/Activities. We’ll kick off 2013 with JKWMA observings at dark on **Fri.-Sat., Jan. 4th-5th**. It’ll be a great opportunity for you to try out the astronomy stuff you got at the dinner party or for Christmas. Directions to JKWMA and other observing sites can be found under the Downloads link on our website.

Our club meeting will be at 7:30 p.m. on **Thurs., Jan. 10th** in Rm. 305 of the Flynt Bldg. on the UGa-Griffin campus. **Yr. editor** will finish his “Observing Basics” talk from the Nov. meeting and add material from observing guru **Art Russell** regarding what to look for when observing deep-sky objects.

On **Fri.-Sat., Jan. 11th-12th**, we’ll return to JKWMA for a second weekend of deep-sky observing.

Finally, we’ll wind up January with a public observing at Banks Stephens Middle School in Forsyth, Ga., on **Thurs., Jan. 31st**. There will be about 200 students attending the event, so please try to help out if you can make it. The observing will begin at 6:00 p.m., and will last about 90 minutes.

To get to the school from, say, Griffin, go W on Ga. Hwy. 16 to I-75S. Set your odometer at 0.0, and go 19.8 mi. to Exit 185 (Ga. Hwy. 18). Turn right, go 0.7 mi. to the dead-end stop sign and turn left onto U. S. Hwy. 41S. Go one mi. on 41S and turn right onto Thornton Rd.

Go 0.2 mi. on Thornton Rd., and the first school you come to on the left will be Banks Stephens M. S. Drive past the front and go behind the school. (If you reach the second school on the left, G. Scott Elementary, you’ve gone too far.)

The G.P.S. coordinates for B.S.M.S. are 33° 00’ 43.44” N, 83° 54’ 59.73” W.

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“In astronomy, amateurs have always played a major part, and they still do. Amateurs do things professional astronomers don’t want to do, haven’t time to do or can’t. And the average amateur knows the sky a great deal better than the average professional. So amateurs discover comets, novae and so on.”

-Sir Patrick Caldwell-Moore
Interview, 2008

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Eyepieces, Magnifications **and Fields of View:** **Three Questions**

The function of eyepieces, mirrors and lenses in binoculars and telescopes is to bring distant objects closer to the eye of the observer.

In astronomy, we’re looking far out into the universe. Bringing a distant object closer to us means that it will also be larger and brighter in our view. That’s why we can see details in, say, **Andromeda Galaxy**, **Orion Nebula** or the **Moon** that we’d never see in our naked-eye view of them.

Here are three questions and answers regarding eyepieces, magnification and field of view.

1. How can I determine the magnifications of my eyepieces? You need

to know two things: the focal length (f.l.) of your telescope and the f.l. of your eyepieces. Both are measured in millimeters (mm), and both can be found on your telescope and/or eyepieces, or in your owner's manual.

Telescopic focal lengths usually are 2,000mm or less, and eyepiece focal lengths are typically between 4mm and 40mm.

To determine the magnifications afforded by, say, 10mm and 25mm eyepieces in a telescope with a f.l. of 1,200mm, simply divide 1,200 by 10 and 25, giving magnifications of 120x and 48x for those eyepieces in that telescope. "120x" means that the image will be 120 times closer and larger than it would be to the naked eye. So at 120x you'll be viewing the **Moon** from a distance of 2,000 miles rather than 240,000 miles.

A 2x Barlow lens attached to your eyepiece will double the magnifications, but it will not necessarily improve the clarity of the resulting image.

2. Why do objects move out of a telescopic field of view (fov) faster at higher magnifications? Your field of view is what you see when you look into the eyepiece. Increasing magnification increases the size of images while decreasing the size of the fov. You're seeing a larger image moving across a smaller area of sky.

3. How can I determine the size of my field of view in a given eyepiece? The larger the fov, the longer objects will stay in view without moving your telescope tube. So the question is: *How large is the field of view in my eyepieces?*

Pick a bright star such as **Aldebaran** (**Alpha Tauri**, the Bull's bright yellow eye). Place Aldebaran at the edge of your fov, and time in seconds how long it takes for the star

to move through the center of your fov to the opposite edge. Dividing that time by 4 will give you the fov in arc-minutes for that eyepiece. (One degree= 60 arc-minutes [60'].)

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Upper Right: You can see the distinctive shape that gives Sharpless 2-101 its nickname -- "Tulip Nebula" -- in **Felix Luciano's photo** (which is better than the photo of Sh-101 that appears in Kepple & Sanner's *Night Sky Observer's Guide*.) The nebula is very faint visually, and it requires considerable care to avoid over-exposing the nebulosity in photos.



Above: **Jupiter** is by far the largest planet in the solar system, its diameter 11 times that of Earth. Incredibly for such a large body, though, Jupiter rotates on its axis

nearly 2.5 times faster than the Earth does. A Jovian day is only 9.85 Earth-hours long. As a result, the clouds in Jupiter's upper atmosphere are stretched into permanent bands that completely circle the planet.

There are two kinds of bands, both of which are clearly visible in **Alan Pryor's** photo: light-colored *zones* of rising air and dark-colored *belts* of descending air.

The thick white stripe bisecting the center is the Equatorial Zone, and the dark areas immediately above and below it are the Equatorial Belts. Above and below them lie the dark Temperate Belts.

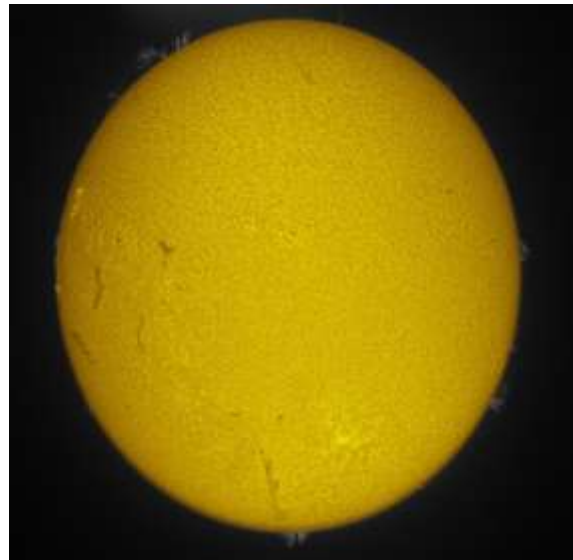
The charcoal gray areas at the top and bottom of the planet are the Polar Regions, and the two disks to the right of Jupiter are two of its Galilean moons.

Opposite: Solar photos by **Stephen Ramsden** (upper right) and **Alan Pryor** (center). Of particular interest are the **prominences** along the **Sun's** edge. White-light solar filters will show you **sunspots** – short-lived magnetic storms that erupt to become solar **flares** – but it takes an H-alpha filter to see a prominence. Prominences are solar flares of erupting gases as seen along the Sun's perimeter.

Obviously, Alan's photo shows only a portion of the Sun – but what a photo!

Stephen doesn't normally take closeup photos because he's showing the Sun to children, and he wants them to see it in all its majesty. Better yet, he allows *them* to photograph it, which makes his school visits all the more memorable for the kids.

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Here's hoping that you and everyone important in your life had a very Merry Christmas and a Happy New Year, and that 2013 will bring you and yours good health and happiness. And a few clear nights for observing.

-Bill Warren

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