

# THE FLINT RIVER OBSERVER

Newsletter of the FLINT RIVER  
ASTRONOMY CLUB  
(an affiliate of the Astronomical League)

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

Board of Directors: **Tom Moore**; **Charles Anstey**; **Tom Danei**; and **Felix Luciano**.

AlCor/Webmaster, **Tom Moore**; Ga. Sky View/Astronomy Day Coordinator, **Steve Knight**; Observing Chairman/Public Observing Coordinator, **Larry Higgins**; Program Co-Chairmen: **Larry Higgins** and **Bill Warren**; NASA contact: **Felix Luciano**; Event Photographer, **Tom Danei**; and Newsletter Editor, **Bill Warren**.

Club mailing address: 1212 Everee Inn Road, Griffin, GA 30224. Web page: [www.flintriverastronomy.org](http://www.flintriverastronomy.org); discussion group at <[FRAC@yahogroups.com](mailto:FRAC@yahogroups.com)>.

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.-Sat., Apr. 25-26:** Cox field observings (at dark); **Sat.-Sun., Apr. 26-27:** Griffin Mayfling arts & crafts festival FRAC booth; **Fri.-Sat., May 2-3:** Cox Field

observings (at dark); **Thurs., May 8:** FRAC meeting (7:30 p.m., Stuckey Bldg. on the UGa-Griffin campus); **Fri.-Sat., May 9-10:** Cox Field observings (at dark); and **Fri., May 16:** Amer. Cancer Society "Relay For Life" observing (Spalding H.S., 7 p.m. till dawn).

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**President's Message.** "We've been lucky," **Steve Knight** said, referring to our four previous star parties in which bad weather was at worst a momentary distraction in weekends filled with clear skies.

This year the weather wasn't so kindly, thanks to clouds, wind and rain that didn't seem to care that we had a star party going on.

Still, much good came from our time spent together at Camp McIntosh this year. As Steve has often said, **Ga. Sky View** is basically a social star party (as opposed to, say, a more serious one where observers stay hunkered down over their 'scopes for 8-10 hours at a time, snarling at anyone who talks above a whisper, accidentally turns on a white light or attempts to engage them in friendly conversation). So under the circumstances we did what we do best: *socialize*.

Boy, did we socialize!

Ignoring to the best of our ability **Larry Higgins's** ongoing display of crude bodily functions, we managed during the course of the weekend to solve every problem facing mankind, from global warming to the energy crisis, politics, and whether **David Archuleta** will make the finals of this year's "American Idol" competition. ("If you want to vote for him -- or for anybody else, for that matter," someone said, "dial 1-B-R-A-I-N -D-E-A-D and get a life.")

A few years ago I wrote a poem, “The Deep Sky Observer’s Lament” (see p. 4) that might have applied to this year’s Ga. Sky View and its starless starry nights – but it didn’t, because we wouldn’t let it. Thanks to everyone whose hard work and good nature kept things going smoothly under trying conditions.

We learned a lot this year, all of which will be applied to making GSV ’09 the best ever.

**-Bill Warren**

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**Last Month’s Meeting/Activities.** FRAC members who attended this year’s Ga. Sky View included: **Steve Knight; Larry Higgins; Tom Danei; Felix Luciano; Doug Maxwell; Smitty; Steve & Betty Bentley; Dr. Richard Schmude; Steve & Aimee Mann; Carlos & Olga Flores; Alan & Sally Bolton; Charles, Lisa, Erica & Jeffrey Anstey; and yr. editor.** And of that crew, you’d be hard-pressed to find even one who didn’t enjoy himself or herself at GSV, rain or no rain.

**Larry Higgins** won a pair of Oberwerk binoculars, and **Charles Anstey** captained the winning Sat. night trivia contest team. **Dr. Richard Schmude** gave a talk on measuring the size of Jupiter’s storm systems, **Dr. Michael Covington** spoke on DSLR astrophotography, and **Steve Bentley** showed how to construct a custom power supply for your telescope.

We would be remiss in our editorial responsibilities if we failed to mention some people whose hard work contributed mightily to the success of GSV ’08: for starters, **Steve**

**Knight** made the very best of a soggy situation and worked hard to see that everyone present went away with pleasant memories of a good time had by all.

Then there was **Angela Smith**, who was on virtually 24-hour duty at the registration desk, and her two great teenagers, **Joshua** and **Ashley**, who were always around and looking for ways that they could help out.

**Betty Bentley**, with occasional assistance from her sister **Barbara**, of Monticello, not only prepared tasty midnight munchies for both nights, but also had breakfast fare available on Sat. and Sun. mornings, thereby helping to extend our waistlines and raise the level in the donation jars.

We had 25 members and one visitor at our April meeting. The visitor was **Jessie Dasher**, the members **Curt & Irene Cole; Doug Maxwell; Tom Moore; David Mitchusson; Betty & Steve Bentley; Lee Russell; Carlos Flores; Jerry & Beverly Williams; Joel Simmons; Dwight Harness; Kevin Murdock** (who joined at the meeting); **Charles Turner; Charles, Lisa, Erica and Jeff Anstey; Aimee & Stephen Mann; Steve Knight; Dr. Richard Schmude; Felix Luciano;** and last but certainly not least, **yr. editor.**

The speakers were Dr. Schmude and yr. editor, our topic “Double Stars and Variable Stars” (Dr. Schmude) and “How to Observe Double Stars” (the other guy). Steve Knight reported that 43 people attended Ga. Sky View ’08, and that our leftover perishables and snacks were donated to the Forsyth Healthcare nursing home in Forsyth. It was a classy, thoughtful gesture on Steve’s part.

Under a nearly full **Moon** on Apr. 17<sup>th</sup>, **Joel Simmon, Tom Danei, Charles Turner, Tom Moore, Larry Higgins** and yr. editor traveled to a site near Barnesville to show the sky to 50-60 students from **Dr. Richard Schmude's** classes at Gordon College while he talked with them about constellations. It's hard to tell who had more fun, us in showing them the wonders of the night sky or them in seeing those wonders for the first time in telescopes. Tom Danei had so much fun that he wasn't upset at finding his bino viewer in yr. editor's eyepiece case for the third time this year.

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**This 'n That.** Recently, **Tom Moore** sent out two club-wide e-mailings, one an updated membership list and the other the Summer '08 Special Edition of the *Observer* dedicated to **Dr. Richard Schmude's** being selected to receive the A. L.'s "Astronomical League Award 2008" this summer at ALCON.

Please notify Tom or **Bill Warren** promptly if, for whatever reason, you either fail to receive your newsletter, the A. L.'s newsletter (*The Reflector*) or other mailouts that you know you should be getting, or if you experience any other problems.

\*A hearty "Welcome to FRAC!" is due our newest member, **Kevin Murdock**, who joined the club at our April meeting. Kevin hails from a town with a legendary name, i.e., The Rock, Ga. Glad to have ya onboard, Kevin, keep on Rockin'!

\*We now have both the **Dr. Schmude** Special Edition of the *Observer* and the

Summer, 2003, Special Edition featuring **Katie Moore**, on our website. Just click on the Awards link and take a stroll down Memory Lane to find out exactly why Katie, like Dr. Schmude, is and always will be special to FRAC.

\*We're happy to announce that both **Ken Walburn** and **Betty Bentley** are recuperating nicely from hip and knee surgeries, respectively. We were gonna send flowers from the club, but at the time the cemetery didn't have a good selection.

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Astronomy compels the soul to look upwards, and leads us from this world to another.

-Plato

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**Upcoming Meetings/Activities.** Including the last weekend in April, we'll have three consecutive weekends of Cox Field observings: **Fri.-Sat., April 25th-26th, Fri.-Sat., May 2<sup>nd</sup>-3<sup>rd</sup>, and Fri.-Sat., May 9<sup>th</sup>-10<sup>th</sup>.** The skies will, of course, be crystal clear on all six evenings (although you may have to travel to the deserts of Chile or Peru to find them if Cox Field isn't clear). Still, one clear evening out of six isn't much to ask, is it?

The last weekend in April will also feature FRAC's participation in this year's **Griffin Mayfling** arts & crafts festival. We'll have a booth at the festival, which will run from 10 a.m. to 6 p.m. on **Sat., April 26<sup>th</sup>** and from 11 a.m. to 5 p.m. on **Sun., April 27<sup>th</sup>.** We'd love to have you join us and stay for as long as you like on either or both days. We talk with

passersby about telescopes and astronomy, and show them filtered views of the **Sun**.

To get to Griffin's City Park (where Mayfling is held) from, say, Newnan, Jonesboro or McDonough, get on U. S. Hwy. 19/41 South like you're going to Cox Field, only stay on the 4-lane past the Ga. Hwy. 362 (Williamson Rd.) exit. Turn left at the stoplight at the next intersection. (A sign by the stoplight identifies the road to the left as Airport Road.)

Turn left onto Airport Rd., and go straight through the 4-way stop at the top of the hill. Go past the walking track on the left, and turn left onto Hill St. where Airport Rd. ends at the Rose's shopping center.

After following Hill St. for .6 mi., turn left onto 8<sup>th</sup> Street at the bottom of the hill, and follow the main road uphill. After .5 mi. you'll come to Spalding Regional Hospital on the left. Turn left at Graefe St., the first street beyond the hospital, and stay on that road past the hospital and into City Park, straight ahead.

Sandwiched in between the latter weekend dates will be our club meeting on **Thurs., May 8<sup>th</sup>**, in the Stuckey Bldg. on the UGa-Griffin campus. Our speaker will be **yr. editor**, who will talk about "The Realm of the Galaxies," that magic portion of the sky where literally thousands of galaxies are available to amateur telescopes.

On **Fri., May 16<sup>th</sup>**, we'll stage a public observing at Spalding H. S. in Griffin, site of this year's American Cancer Society "Relay For Life" all-night walkathon. The lights around the SHS track will be turned off around 10 p.m., and after that the sky is remarkably dark. Plan to come early and eat at any of the zillion-and-one food booths on the grounds.

This event is a biggie, and well worth your time and support. It draws more than a thousand watchers and walkers, many of whom will stop by during their breaks to see what we have to show them. You can stay as long as you like – it runs from sunset to sunrise the next morning. One year **Felix Luciano** and a couple of others stayed till 5 a.m.

To get to the school from, say, McDonough, come S on I-75 and get off at the Griffin-Jackson exit (Ga. Hwy. 16). Turn right toward Griffin, and after about 8 mi. you'll cross some RR tracks. Turn left beyond the tracks at the stoplight at Wilson Road, and SHS will be about ½ mi. ahead on your left. Drive past the school and track, turn left at the paved road and then turn left onto the school property and look for us.

Coming from, say, Newnan, come in on Ga. Hwy. 16 and drive all the way through Griffin on 16. After you pass the (2<sup>nd</sup>) Dairy Queen – the one on the south side of town, not the one by Chick-Fil-A – stay on 16 past the RR tracks and turn right at the stoplight at Wilson Rd. Follow the rest of the directions in the previous paragraph to get to the school and find us.

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### **The Deep-Sky Observer's Lament**

I think that I shall never spy  
Another object in the sky.  
Those dark, clear nights I well recall  
Have gone away until the fall.

So here I sit without a hope  
Of getting out my telescope

(Except to clean or collimate it).

Rainy nights.

The clouds.

I hate it.

**-Bill Warren**

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**The Sky in May.** Between May 6<sup>th</sup>-18<sup>th</sup>, **Mercury** will be a small but fat crescent disk telescopically in the WNW sky half an hour after sunset. You'll need an open view to see it because Mercury, being closer to the **Sun** than we are, never rises very high. Still, at mag. 0.3 it's bright enough to be an easy naked-eye object. On May 6<sup>th</sup>, Mercury will be less than 3° below the thin crescent **Moon**.

**Mars** will still be up in the W sky in May. On the 22<sup>nd</sup>, Mars will lie along the edge of **M44 (Praesepe, the Beehive Cluster)**. Three days later, a NASA spacecraft will soft-land near Mars's north polar region.

**Saturn** will still be high in the W sky in *Leo* during May, its rings about as visible as they'll get for about 2 years.

**Jupiter** will rise about midnight. **Neptune** will be an 8<sup>th</sup>-mag. morning star in *Capricornus*.

On the evening of May 8<sup>th</sup>, the mag. 9.7 asteroid **5 Astraea**, a 75-mi.-wide rock, will pass within 5' – about a finger-width in your low-power telescopic field of view – south of the mag. 6 star **37 Virginis**.

An expected fine **Eta Aquarids meteor shower** will peak around May 5<sup>th</sup>. With its radiant low in the E before dawn, you still may get up to 30 meteors an hour around 4 a.m.

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## **VOTES FOR SALE: Exposing the Seamy Side of FRAC's New Leadership Team**

**humor by Bill Warren**

Seeking to become the first amateur astronomy club newsletter editor to win a Pulitzer Prize for investigative reporting, **yr. editor** recently uncovered evidence that FRAC's newly elected leaders have engaged in a number of unsavory practices, including alleged drug deals and stealing this year's election.

For example, when asked point-blank by this reporter whether he and his slate of officers paid club members to vote for them, president **Bill Warren** stated emphatically that "We would *never* attempt to buy votes!"

But then, in an attempted bribe, he offered this reporter a free set of Ginsu steak knives and a terrific deal on oceanfront acreage and homesites near Ames, Iowa, to forget all this. When that ploy failed, he fixed us with an evil glare and added ominously, "We know where you live, and we have a GPS that works occasionally. Don't make us send **Ken Walburn** over to your house one night, armed with his cane!"

"Naw, we didn't buy no votes," vice president **Larry Higgins** agreed. "Everybody I talked to was asking too much, except for a couple of guys who offered us a two-for-one deal. But it's like Bill told us: *Buy an election, not a landslide.*"

“Anyway, we didn’t buy no votes at the election meeting – although some of us *rented* a few votes for a couple of hours.”

In other late-breaking news, there was this shocking development:

Confronted with charges that, in a frenzy of last-minute vote-buying, he had maxxed out his Visa card, new board member **Tom Moore** replied angrily, “Hey, that was a legitimate business deal – and anyway, *I* was the one who got cheated!

“I told one of our members,” Moore went on, “that I wanted to buy a dark-sky observing site from him (wink, wink!). But what I got was a dark alley in downtown Atlanta. And then the guy didn’t even vote for me!

“So now I’m stuck with an 8-foot by 6-foot space between a Dempster Dumpster and a wino in an alley off Tenth Street!”

“You gotta understand how it was,” incumbent board member **Felix Luciano** said. “We thought we were gonna be running unopposed. But then we saw the “Other” space on the ballot, and we panicked. Oh man, it was scary!”

“Yes, it was,” said **Tom Danei**, another incumbent board member. “Historically, one-named people like **Elvis, Beyonce, Madonna, Prince, Dubya** and **Billary** have always had an advantage over the rest of us, because one name is easier to remember than two.”

“None of us knew anything about that ‘Other’ candidate on the ballot,” new board member **Charles Anstey** added. “Was it seven people with the same name? Or one person running for all seven offices? We didn’t even know if Other was his first or last name.”

“Yeah,” said Tom Moore. “For all we knew, it was his middle name, and his first name was ‘Mother’s’ and his last name ‘Brother.’ Can you imagine how you’d feel losing the election to Mother’s Other Brother?”

At that point, yr. fearless reporter’s pencil point broke, so he concluded his interview – but not before asking Warren about alleged drug deals at Cox Field.

“It’s true,” said the president shame-facedly. “Larry has been doing it for years. Frankly, I think it’s disgraceful that a FRAC officer, of all people, would go out to Cox Field observings with his pockets bulging with little white packets of No-Doz tablets for sale.”

In a related matter, new secretary-treasurer **Steve Bentley** was seen giving money to a lady of the night, if you know what we mean, at a recent Cox field Observing.

“That was no lady,” Bentley protested when confronted with photographic evidence of his indiscretion, “That was my wife.”

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## Stellar Compass for Space Explorers

by Patrick L. Barry

In space, there's no up or down, north or south, east or west. So how can robotic spacecraft know which way they're facing when they fire their thrusters, or when they try to beam scientific data back to Earth?

Without the familiar compass points of Earth's magnetic poles, spacecraft use stars and gyros to know their orientation. Thanks to a recently completed test flight, future spacecraft will be able to do so using only an ultra-low-power camera and three silicon wafers as small as your pinky fingernail.

"The wafers are actually very tiny gyros," explains Artur Chmielewski, project manager at JPL for Space Technology 6 (ST6), a part of NASA's New Millennium Program.

Traditional gyros use spinning wheels to detect changes in pitch, yaw, and roll—the three axes of rotation. For ST6's Inertial Stellar Compass, the three gyros instead consist of silicon wafers that resemble microchips. Rotating the wafers distorts microscopic structures on the surfaces of these wafers in a way that generates electric signals. The compass uses these signals—along with images of star positions taken by the camera—to measure rotation.

Because the Inertial Stellar Compass (ISC) is based on this new, radically different technology, NASA needed to flight-test it before using it in important missions. That test flight reached completion in December 2007 after about a year in orbit aboard the Air Force's TacSat-2 satellite.

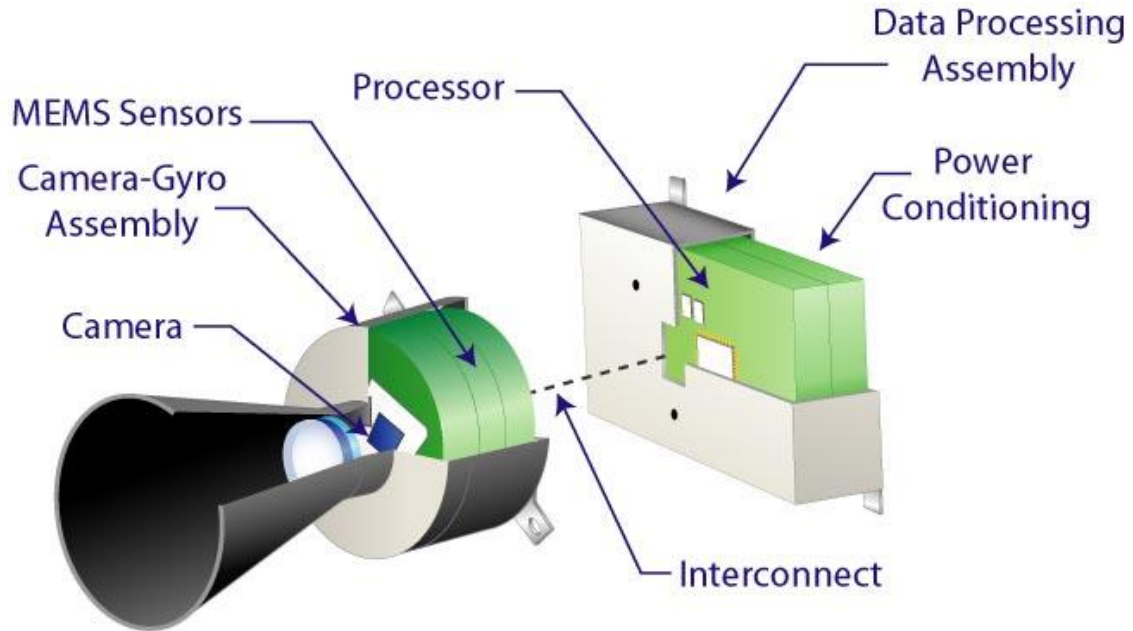
"It just performed beautifully," Chmielewski says. "The data checked out really well." The engineers had hoped that ISC would measure the spacecraft's rotation with an accuracy of 0.1 degrees. In the flight tests, ISC surpassed this goal, measuring rotation to within about 0.05 degrees.

That success paves the way for using ISC to reduce the cost of future science missions. When launching probes into space, weight equals money. "If you're paying a million dollars per kilogram to send your spacecraft to Mars, you care a lot about weight," Chmielewski says. At less than 3 kilograms, ISC weighs about one-fifth as much as traditional stellar compasses. It also uses about one-tenth as much power, so a spacecraft would be able to use smaller, lighter solar panels.

Engineers at Draper Laboratory, the Cambridge, Massachusetts, company that built the ISC, are already at work on a next-generation design that will improve the compass's accuracy ten-fold, Chmielewski says. So ISC and its successors could soon help costs—and spacecraft—stay on target.

Find out more about the ISC at [nmp.nasa.gov/st6](http://nmp.nasa.gov/st6). Kids can do a fun project and get an introduction to navigating by the stars at [spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml](http://spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml).

**This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.**



**Caption:**

*Compass is built as two separate assemblies, the camera-gyro assembly and the data processor assembly, connected by a wiring harness. The technology uses an active pixel sensor in a wide-field-of-view miniature star camera and micro-electromechanical system (MEMS) gyros. Together, they provide extremely accurate information for navigation and control.*