THE FLINT RIVER OBSERVER

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

Vol. 12, No. 1 **March, 2008**

Officers: President/Alcor, **Curt Cole:** (770)946-3405, 24e29d55c@speedfactory.net; Vice President/Newsletter Editor: **Bill Warren:** (770)229-6108, warren7804@bellsouth.net; Secretary-Treasurer, **Irene Cole**.

Board of Directors: **Larry Higgins**; **Tom Danei**; and **Felix Luciano**.

Webmasters, **David Ward** and **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**; Publicity: **Curt** Cole; NASA contact: **Felix Luciano**; and Event Photographer, **Tom Danei**.

Club mailing address: 190 West James Circle, Hampton, GA 30228,. Web page: www.flintriverastronomy.org; discussion group at <FRAC@yahoogroups.com>.

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

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Club Calendar. Mon., Mar. 3: Home school observing (Covington, 6 p.m.); **Fri.-Sat., Mar. 7-8:** Cox Field observings (at dark); **Thurs., Mar. 13:** FRAC meeting (7:30 p.m., Stuckey Hall on the UGa-Griffin campus); **Fri.-Sat., Mar. 28-29:** Cox Field observings (at dark).

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President's Message. Serving as FRAC's president for the last two years, beginning in March 2006, has been a very educational experience for me. I want to thank Steve Knight for asking me to serve. I encourage everyone to accept an elected or appointed position in the club, both to serve the club and to gain a better understanding about how the democratic process works, including balancing different and sometimes conflicting desires of a diverse society.

As I make way for the next president, I want to thank all who have helped make the public aware of FRAC's existence, since that's the first step in increasing membership. David Ward and Tom Moore have done a great job with the club's website. The site is an important method to advertise our presence. Tom & Brit Danei developed a really nice video to promote the club and amateur astronomy in general, which we're distributing to area libraries.

The public appreciates our public observings, which give many people a first opportunity to view the Moon, Saturn, the Andromeda Galaxy and more through a telescope. Thanks to all who help out with those. The lunar eclipse public observing of last week went over very well. We had articles or notices published in the Griffin, Henry & Fayette county newspapers and maybe others as well. That brought a lot of people out who had never heard of us.

Thanks to everyone who has made visitors feel welcome. Most of us know how intimidating it can be to go to a meeting not knowing anyone or anything about the hobby. Our visitors seem to leave realizing that we appreciate them. Whenever you see someone at a meeting or observing, say "hello" to him or her. That may end up being a great friend.

Thanks to Steve Knight for organizing and running a very enjoyable Georgia Sky View. All attendees I've talked to have liked it a lot.

Thanks to Bill Warren who each month puts a lot of effort into producing our club newsletter. I'm sure he'll continue to put out a nice read, and will lead the club to continued growth as president. The March 2006 membership roster listed 22 paid members in FRAC. We're up to 41 paid members. This much of an increase shows that the club has something to offer many people. Meeting attendance is also way up, (27 people at last month's meeting) thanks in large part to the programs we have at each meeting, thanks to Bill Warren & Larry Higgins, and all those who present a program.

Thanks to Board members Felix Luciano, Tom Danei & Larry Higgins for their input and advice.

Lastly, thanks to Irene for keeping excellent records as secretary/treasurer. She has brought openness and accountability to the club's finances that I believe is important to maintain member's trust in the leadership.

Above all, I wish the best for all FRAC members, past, present and future.

-Curt Cole

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Last Month's Meeting/Activities. The threat of cold weather and clouds kept all but seven members and guests away from our first two Feb. Cox Field observings: **yr. editor** (both nights); visitors **Clifford & Yolanda Moorer** (Fri. night); and **Larry Higgins** and **Dwight & Laura Harness** (Sat. night). The Fri. night sky was good; Sat. evening brought occasional clouds but offered lots of observable sky.

As for our second Feb. Cox Field observing weekend – well, all we can say is, *If you weren't there, you shoulda been!*

On Fri. evening, crystal-clear skies with only a hint of humidity brought out 10 members – **Joel Simmons; Felix Luciano; Mike Stuart; Larry Higgins; Israel, Autumn, Amara & Seneca Baryeshua; Curt Cole;** and **yr. editor** – and 4 visitors: **Carlos & Olga Flores, Charles Turner** and a young guest of the Baryeshuas whose name we didn't get.

Sat. evening was even better: the same clear skies with NO humidity (and no wind to drive down the temperature) were enjoyed by seven members – **Dwight & Laura Harness; Joe Auriemma; Larry Higgins; Felix Luciano; Joel Simmons;** and **yrs. truly –** and seven visitors: **Lee & Sara Russell**; **Scott Frame, Cass Roberson & Derek Skaggs** (Newnan); **Alex Rogers** (Atlanta); and **Charles Turner.**

Felix accomplished his goal of finding emission nebula **NGC 1931** in *Auriga* and the **Gemini Nebula (NGCs 2371-72),** the latter a target suggested by *S&T's* **Sue French** in the Mar. 2008 issue. Joe A. found **M67** when yr. editor was looking for it in the wrong place. Felix pointed out the 11th-mag. planetary nebula **NGC 2348** in the open cluster **M46,** which Mike S. found with ease Fri. night but neither of us could see the planetary despite having a photo of the M46 field to go by (and

our having observed it many times in the past).

When yr. editor said "I think I need Lasik surgery," Larry H. kindly added, "While you're at it, see if he'll give you a 2-for-1 deal and throw in brain surgery, too."

Twenty-seven members and visitors attended our Feb. meeting to hear **Steve Bentley's** excellent talk on setting up a battery-powered system for your telescope. Steve made it so simple that even a geek like **yr. editor**, who struggles at tasks like emptying the car's ashtray, could follow his presentation.

Other attendees included: **Curt & Irene Cole; Steve & Aimee Mann; Charles, Lisa, Erica & Jeffrey Anstey; Ken Walburn; Tom Moore; Joel Simmons; Betty Bentley; Mike Stuart; Steve Knight; Tom Danei; Larry Higgins; Dwight Harness; Dr. Richard Schmude;** new members **Raymond Hughes, Lee Russell, Carlos & Olga Flores, Robert McCarty** and **Charles Turner;** and visitor **Larry Knight** of Stockbridge**.**

A wonderful group of **20** members – **Larry Higgins, Tom Moore, Curt & Irene Cole, Joel Simmons, Steve & Betty Bentley, Joe Auriemma, Lee & Sarah Russell, Alan & Sally Bolton, Steve Mann, Dwight & Laura Harness, Mike & Danielle Stuart, John Wallace** (an Athens, Ga. Resident and charter member of FRAC), **Charles Turner** and **yr. editor** were joined by special guests **Lee Delgado** (Mike's granddaughter), **Cody Stonica** (Danielle's boyfriend), **Keith Cox** (another FRAC charter member who dropped by to say hello); and between 75-125 area visitors at the UGa-Griffin campus to enjoy the Feb. 20th lunar eclipse. The sky cooperated, and everyone had a good time. Joel Simmons and Carlos Flores took some awesome photos of the eclipse, and Curt put out a striking display of lunar features and eclipses.

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Upcoming Meetings/Activities. We'll start the month with our third try at a home schooling observing at 6 p.m. on **Mon., Mar. 3rd.** Directions to the observing site appeared in the Feb. *Observer* (p. 4), and can also be found via the "Club Calendar" link on our website, **www.flintriverastronomy.org**.

Our first Cox Field observing weekend will be **Fri.-Sat., Mar. 7th-8th.**

The UGa-Griffin class scheduled for Mar. 11th has been cancelled.

Our March meeting, officer elections and birthday party will be at 7:30 p.m. on **Thurs., Mar. 13th,** on the 2nd floor of the Stuckey Bldg. on the UGa-Griffin campus. The program will consist of watching **Larry Higgins** eat cake like there's a famine coming. ("I'm eating for two," he explained at last year's celebration. "Me and my tapeworm.")

We'll close our busy March calendar with Cox Field observings on **Fri.-Sat., Mar. 28th-29th.**

The speaker at our April meeting will be **Bill Warren,** his topic "Observing Tips and Techniques."

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This 'n That. Let's begin with a hearty welcome to FRAC's newest members: Griffinites **Lee & Sarah Russell** and **Carlos & Olga Flores**; **Raymond Hughes** of McDonough; **Robert McCarty** of Sandy Springs; and transplanted Californian **Charles Turner**. Lee, Sarah and Raymond are past

members, and Carlos, Olga, Robert and Charles newcomers.

To all of you: we want to help you achieve your goals in astronomy, whatever those goals may be. Like Delta, we're ready when you are.

*****At the Feb. meeting, **Steve Knight,** coordinator of our **Georgia Sky View 2008** weekend star party, announced that we had a total of 16 registrants signed up for the event on **Apr. 4th-6th.** Folks, we can do better than that. Please do your part, support your club and sign up to attend. We need your presence – and your money – to ensure the success of GSV '08 and future GSVs. Follow our website link to the registration form and send it along with your check to Steve or **Curt.**

*****A feature article, "How Comets Shaped History," by **Rich Jakiel** (who spoke at GSV 2007), appears on pp. 22-27 of the Feb. '08 issue of *Astronomy.*

*****We talked by phone recently with ex-FRACster **Neal Wellons,** who once served as FRAC's AlCor (A. L. Correspondent). Neal is still living at the same address in Hampton, doing fine and enjoying his retirement. His son **Cody** has started a magazine, and **Suzy,** Neal's adorable daughter, is in school and doing well. Neal still reads astronomy and cosmology-related books, and wanted us to say hi to all of his old friends in FRAC.

*****Two previous *Observer* articles by **Steve Knight** have been added to the "Articles" link on our website. The first one,"Putting Heat In Its Place," describes how Steve installed a battery-powered computer fan to get rid of heat on the primary mirror of his telescope; it first appeared in the Feb.-April, 2002, issues of *The Observer.*

Steve's other article, "Putting Heat *Back* In Its Place," deals with the opposite problem, i.e., using heat rope to build a home-made dew zapper. It appeared in the Mar.-May, 2003, issues of *The Observer.*

Regarding the latter: *This* is the system Steve talked about at our Nov. meeting. At the time, he was unable to discuss the precise numbers needed to determine the proper length of heat rope to do the job for your telescope in terms of length of heat rope, ohms of resistance, wattage or amount of heat, and amps of draw on your battery. That missing table of figures appears in the website article.

*Here's wishing the best of luck to members with upcoming surgeries: **Aimee Mann** (eye), **Ken Walburn** (hip), and **Dan Pillatzki** (you name it, he's having it operated on. Dan has had so many surgeries in recent years that the doctor is considering putting in zippers instead of stitches.)

Anyway, here's how you can contact them to send your wishes for speedy recoveries:

Aimee: **stmmann@aol.com**
Ken: **kewalburn@charter.net**
Dan: **Daniel_pillatzki@bellsouth.net** .

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The Sky in March. All six naked-eye planets will be up in March. Two of them, **Mars** and **Saturn,** will be up virtually all night.

Bright, golden Mars (mag. 0.2) will be high overhead in *Taurus* – look for the **V**-shape of the Bull's face featuring yellow **Aldebaran (Alpha Tauri)** as its right eye, as your guide.

Saturn (mag. 0.3) will be rising in *Leo* in the E sky, slightly W of **Regulus (Alpha Leonis)**, the bright, yellow star at the bottom of the backward question mark that forms Leo's face. Saturn's rings are visible even in small telescopes, forming a narrow oval around the planet.

As for the other naked-eye planets: **Jupiter** (mag. -2.0) will rise in the SE during the predawn hours of March. **Mercury** (mag. 0.9) and **Venus** (mag. -3.9) will share the same predawn binocular field if you have a clear view toward the SE horizon. Venus, the 3rd brightest object in the sky after the Sun and **Moon,** is easily recognizable 30 min. before sunrise as a dazzling point of light. It will lie to the lower left of Mercury, so if you can't see Venus in the predawn sky glow, you won't see Mercury either.

Warning: Being closer to the Sun than Earth is, the inner planets Mercury and Venus never stray far from the Sun. ***Do NOT look toward the Sun as it rises*.** Even a momentary glimpse of the rising or setting Sun's radiance, magnified in intensity by binoculars or an unfiltered telescope, can cause permanent blindness.

That's why we use the cautionary phrase "30 minutes before sunrise" when discussing observing the inner planets.

Oh, by the way: the 6th naked-eye planet is the **Earth.** As **Larry Higgins** is always quick to point out, the easiest way to observe it is to look down. If all you see is your waistline, you're eating too much.

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ASK PROFESSOR STARGAZER

Those of you who are new to FRAC will doubtless be proud to know that your club has within its ranks the world's foremost authority on astronomy, cosmology and income tax evasion, the universally renowned **Prof. Theophilus** (pronounced: *The awfulest*) **Stargazer.** When some of our members caught up with the professor recently he was, as always, courteous, informative, thought-provoking and badly in need of a bath.

Joe Auriemma: In your capacity as the most brilliant astronomer since **Galileo,** Professor, have you ever encountered a cosmological question so complex that you couldn't answer it?

Prof. Stargazer: Just one so far, Joe, but I'm still working on it: *If it's true that heat rises, why does the Sun go down at night?*

Betty Bentley: Professor, I—

Prof. Stargazer: Great Galloping Ghost of Jupiter, woman, what the Helvetius is that on your face? Silly Putty? You look like Gumby!

Betty: I was in such a hurry to meet you, I forgot to rinse off my mud pack. Anyway, here's my question: Why are there exactly 88 constellations and not, say, 87 or 89?

Prof. Stargazer: The number 88 has always carried deep significance, Betty. In music, a piano has 88 keys. In astronomy, **Ken Walburn's** I.Q. is 88, and **Larry Higgins** has 88 teeth. (He started out to be a great white shark, but changed his mind.)

There's more to it than that, though. In a recent $42 million study, NASA researchers discovered that *The number 88 appears in every number larger than 88* – with a remainder, of course.

Tom Moore: Professor, what's the difference between a meteor shower and a meteor storm?

Prof. Stargazer: You don't have to bring a gift to a storm.

Aimee Mann: My husband **Steven** wanted me to ask you, Professor: Where do the stars go in the daytime?

Prof. Stargazer: Tell Steven that they are still there, Aimee, but to see stars in the daytime he needs to pick a fight with a bunch of guys on motorcycles.

Felix Luciano: How do you observe **Uranus**?

Prof. Stargazer: With a mirror attached to a long stick.

Joel Simmons: We're often asked this question at public observings, Professor: How far is it to the edge of the known universe?

Prof. Stargazer: Ask **Dan Pillatzki,** he's been out there for years!

Mike Stuart: Prof. Stargazer, have you ever seen a space alien?

Prof. Stargazer: I thought I just answered that question.

Tom Danei: How do astronomers know how many stars there are in a given galaxy?

Prof. Stargazer: Good question, Tom.

When **Katie Moore** was a senior majoring in astronomy at the University of Arizona, I visited her one night while she was at the eyepiece of the 61-in. Kuiper Telescope on Mt. Bigelow. As I drew nearer, I heard Katie mumbling to herself:

"41,237,486,359…41,237,486,360… 41,237,486,361…"

"Hi, Katie, whatcha doing?," I said loudly.

She jerked around, startled, and then smiled and waved. She looked tired. "I'm counting the stars in **NGC 4725,** a face-on barred spiral galaxy in *Coma Berenices.*"

"Why on earth would you be doing that?," I asked.

"It's my senior project," she replied. "My major professor asked me to do it so he could write a paper on it. It's due tomorrow morning."

"How many stars have you counted?," I asked.

"Forty one billion, two hundred thirty seven million…" She paused…looked at the eyepiece…looked back at me with a worried expression growing on her face…then went back to the eyepiece.

"One, two, three, four…"

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Invisible Spiral Arms

by Patrick Barry

At one time or another, we've all stared at beautiful images of spiral galaxies, daydreaming about the billions of stars and countless worlds they contain. What mysteries—and even life forms—must lurk within those vast disks?

Now consider this: many of the galaxies you've seen are actually much larger than they appear. NASA's Galaxy Evolution Explorer, a space telescope that "sees" invisible, ultraviolet light, has revealed that roughly 20 percent of nearby galaxies have spiral arms that extend far beyond the galaxies' apparent edges. Some of these galaxies are more than three times larger than they appear in images taken by ordinary visible-light telescopes.

"Astronomers have been observing some of these galaxies for many, many years, and all that time, there was a whole side to these galaxies that they simply couldn't see," says Patrick Morrissey, an astronomer at Caltech in Pasadena, California, who collaborates at JPL.

The extended arms of these galaxies are too dim in visible light for most telescopes to detect, but they emit a greater amount of UV light. Also, the cosmic background is much darker at UV wavelengths than it is for visible light. "Because the sky is essentially black in the UV, far-UV enables you to see these very faint arms around the outsides of galaxies," Morrissey explains.

These "invisible arms" are made of mostly young stars shining brightly at UV wavelengths. Why UV? Because the stars are so hot. Young stars burn their nuclear fuel with impetuous speed, making them hotter and bluer than older, cooler stars such as the sun. (Think of a candle: blue flames are hotter than red ones.) Ultraviolet is a sort of "ultra-blue" that reveals the youngest, hottest stars of all.

"That's the basic idea behind the Galaxy Evolution Explorer in the first place. By observing the UV glow of young stars, we can see where star formation is active," Morrissey says.

The discovery of these extended arms provides fresh clues for scientists about how some galaxies form and evolve, a hot question right now in astronomy. For example, a burst of star formation so far from the galaxies' denser centers may have started because of the gravity of neighboring galaxies that passed too close. But in many cases, the neighboring galaxies have not themselves sprouted extended arms, an observation that remains to be explained. The Galaxy Evolution Explorer reveals one mystery after another!

"How much else is out there that we don't know about?" Morrissey asks. "It makes you wonder."

Spread the wonder by seeing for yourself some of these UV images at www.galex.caltech.edu. Also, Chris Martin, principle scientist for Galaxy Evolution Explorer —or rather his cartoon alter-ego—gives kids a great introduction to ultraviolet astronomy at spaceplace.nasa.gov/en/kids/live#martin.

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

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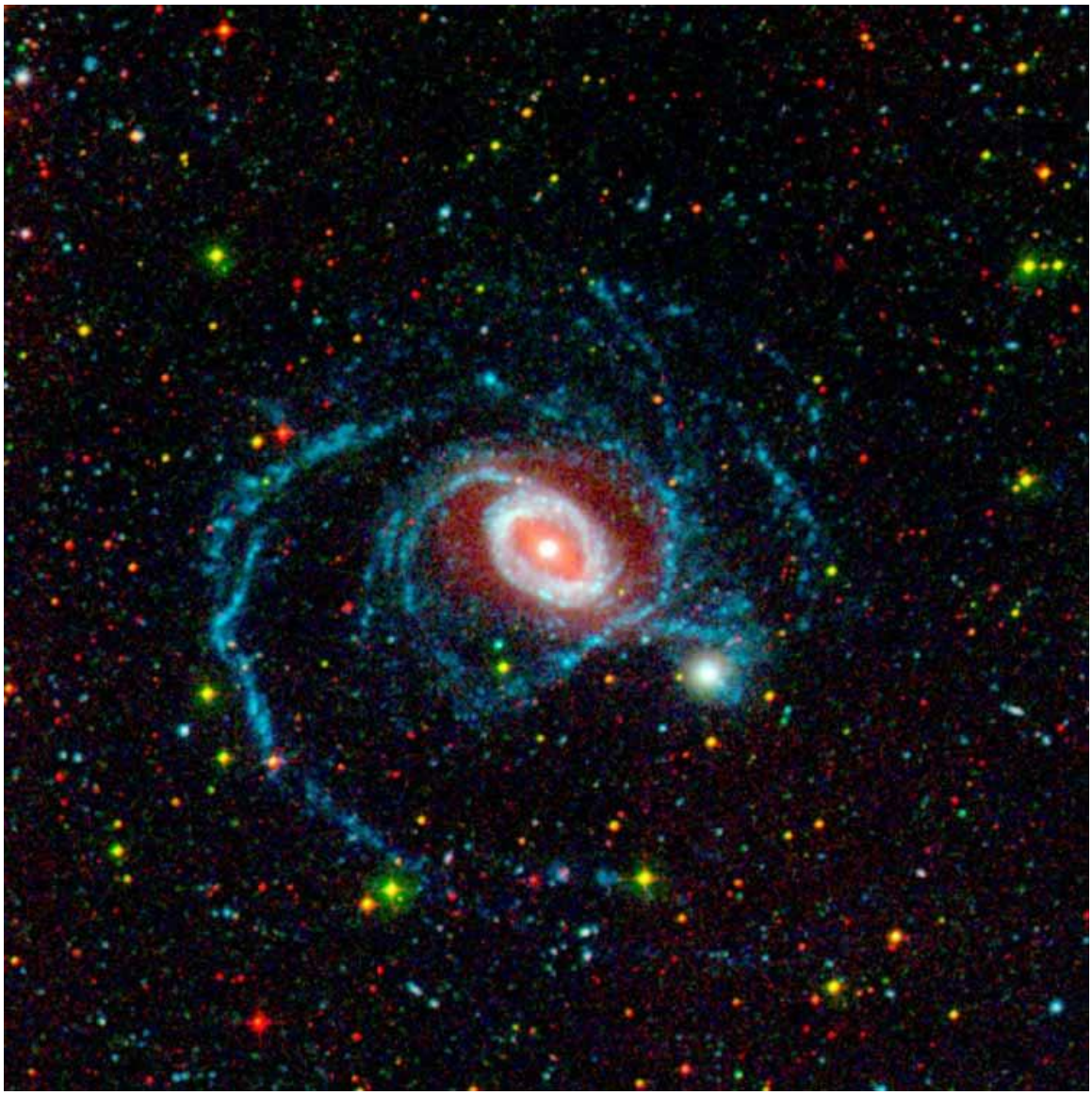
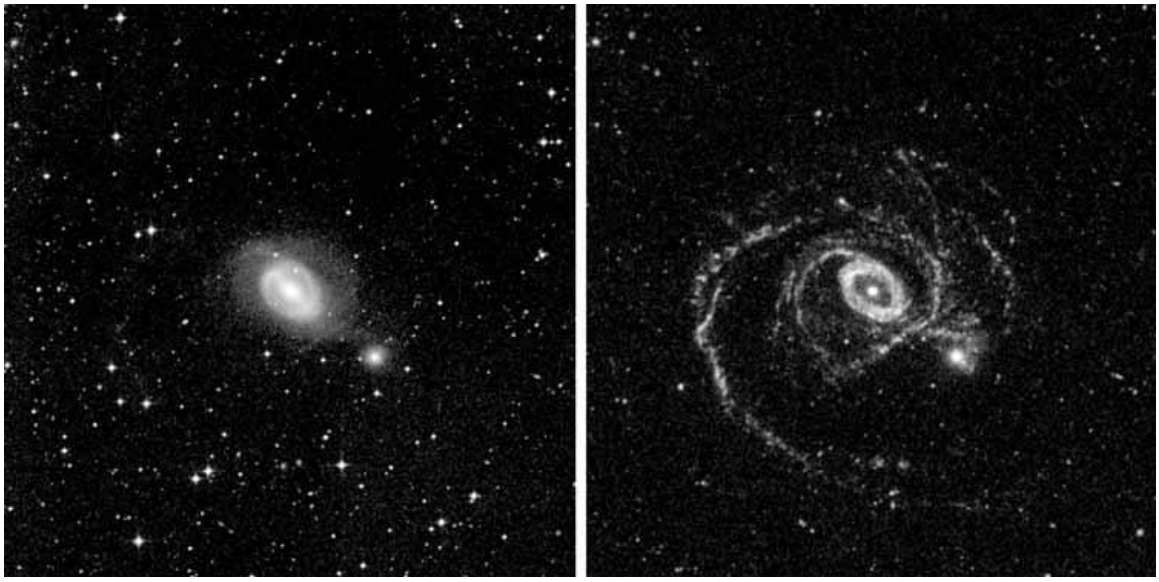


Caption (color image):
In this image of galaxy NGC 1512, red represents its visible light appearance, the glow coming from older stars, while the bluish-white ring and the long, blue spiral arms show the galaxy as the Galaxy Evolution Explorer sees it in ultraviolet, tracing primarily younger stars. (Credit: NASA/JPL-Caltech/DSS/GALEX).



Caption (greyscale images):

Galaxy NGC 1512 is represented in both images. The visible light image on the left shows the glow of older stars, while the Galaxy Evolution Explorer ultraviolet image on the right shows the ring and long, spiral arms, tracing primarily younger stars. (Credit: NASA/JPL-Caltech/DSS/GALEX).