

THE FLINT RIVER OBSERVER

Newsletter of the Flint River Astronomy Club
Vol. 11, No. 1 March, 2007

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

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

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Club Calendar. Thurs., Mar. 8: FRAC meeting (7:30, 2nd floor of Stuckey Bldg. in the UGA Cooperative Extension Griffin Branch complex); **Thurs., Mar. 8-Wed., Mar. 21:** “GLOBE at Night” (see pp. 2-3 for details); **Fri.-Sat., Mar. 16-17:** Cox Field observings (at dark); **Fri.-Sat., Mar. 16-17:** MGAS “Messier Madness” weekend observing (Deer Run Observatory, Buena Vista, Ga., see p. 2 for details).

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President’s Message. It’s election time again. The following members have been nominated to serve as FRAC officers for the next year: President, **Curt Cole;** Vice President, **Bill Warren;** Secretary/Treasurer, **Irene Cole;** and Board of Directors, **Felix Luciano, Larry Higgins and Tom Danei.**

Write-in or last-minute nominations for any position are permitted. Candidates should be active participants in the club, and they should be willing to carry out in a timely manner the responsibilities of the position for which they are nominated.

Please join me in welcoming to FRAC **Jim Chiu,** of Peachtree City. Jim, I hope you’ll let us know how we can make your FRAC membership as rewarding and enjoyable as you want it to be. Your satisfaction is our No. 1 priority. Those aren’t just words, they’re a promise.

-Curt Cole

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Last Month’s Meeting/Activities. We had 12 in attendance at our Feb. meeting: **Curt & Irene Cole, Steve Knight, Felix Luciano, Joel Simmons, Tom Danei, Larry Higgins, Charles, Erica & Jeffrey Anstey,** new member **Jim Chiu,** and last but certainly least, **yr. editor,** whose stirring talk on deep-sky objects had members rising to their feet and putting their hands together – in the former instance due to nausea, and, in the latter case, forming makeshift barf bags.

Curt offered another quiz on the constellations; it was fun, and certainly more successful than the time years ago when **yr. editor** announced a similar constellation quiz. **Ken Walburn,** who apparently hadn’t been listening closely, spoke up: “This *is* an astronomy club, isn’t it, Bill? Why do you want to talk about clogged bowels at an astronomy meeting?”

“He said ‘*constellation,*’ Ken,” someone pointed out, “not constipa—Oh, never mind!”

Four members – **Curt Cole, Joel Simmons, Larry Higgins** and **yr. truly** – and **Charles Turner,** a visitor from Oakland, Cal., who left shortly after dark

because he wasn't dressed for the cold -- showed up for our Fri., Feb. 16th observing. Curt stayed longer than the rest of us, probably because he's taller than we are and it takes longer for nerve impulses from his feet to travel to his brain and tell him that his feet are cold.

Our Sat. observing was clouded out.

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Member Profile: James Roberts. Originally from Columbia, S. C., Jim, 47, is an associate professor at Georgia Tech with a Ph.D. degree in quantitative psychology. He lives in Tyrone, Ga., with his wife **Nancy**, who is also interested in observing.

Jim got his first telescope, a Nexstar 8i, 8" SCT, in early 2003 and describes himself as a beginner- to intermediate-level observer. He also has a 14" scope, 25x100 binoculars, and either a tripod for those big binocs or else he has very strong arms. Jim hasn't had time yet to pursue any observing pins, but he wants to work on the Messier, Deep-Sky Binocular and Lunar Club observing programs.

Jim's other hobbies include fishing and genealogy, and he's just getting into turkey hunting and camping. He'll find plenty of "turkeys" at any given Cox Field observing. (Hey, Jim: just aim at the one with the deep voice!)

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Upcoming Meetings/Activities. We're proud to announce that the guest speaker for our club meeting at **7:30 p.m. on Thurs., Mar. 8th**, will be the Atlanta Astronomy Club's **Ken Poshedly**. For a decade or more, Ken spearheaded the AAC's **Peach State Star Gaze**, one of the biggest and most highly successful annual star parties in the southeastern U. S.

Ken, who has worked extensively with **Tim Puckett** in searching for supernovas at the latter's north Ga. Observatory, will talk about the Association for Lunar and Planetary Observers (ALPO), an organization with which Ken and FRAC member **Dr. Richard Schmude** are involved.

The March club meeting will also be the occasion for electing officers for the next year, and we'll have a brief 10th birthday party for FRAC.

Our Cox Field observings will be held on **Fri.-Sat., Mar. 16th-17th**. (Ten years ago, our first club observings were held in an open field adjacent to the Boy Scout Hut in Sunnyside, Ga., N of Griffin, where our inaugural meeting was held.) With the new moon on **Sun., Mar. 18th**, this weekend will be ideal for conducting your own Messier Marathon. (Once a year, during a small window in March centered around the Spring equinox on Mar. 21st, all of the Messier objects [except possibly **M30**, a globular in *Capricornus* that likely will be lost in the glare of sunrise] can be observed in a single all-night session.)

Or...If you don't mind putting a few extra miles on the old heap – your *car*, that is, not your spouse or significant other – read on:

Lyle Fischer of the **Middle Georgia Astronomical Society (MGAS)** has announced that that group "is inviting Ga. Amateur astronomers to attend a *free* 'Messier Madness' weekend of observing from **Fri., Mar. 16-Sat., Mar. 17, 2007** at the **Deer Run Observatory** located just S of Buena Vista, Ga.," on the property of **Matthew Gautier**.

"Deer Run Observatory," Fischer goes on, "is located...under what are arguably the darkest skies in Georgia. Deer Run is dedicated to astronomy education for the general public. Deer Run also provides a dark sky refuge for those city-bound amateur astronomers who want to observe or image under dark sky conditions without having to buy a piece of land to do it. (See: www.darkgeorgiaskies.com)

"There's room for overnight camping, so bring your gear. Saturday afternoon, the club will christen the newest observatory on the site, which was recently completed by 'Backyard Observatories.' We'll have a grill for cooking, so bring your favorite grillable goodies, fixin's and drinks...

"RSVP is a must, as space is limited. For more info and to RSVP, please contact Matthew at astronomy133@yahoo.com. See you there!"

To get to Deer Run Observatory, take I-75 south past Macon and Perry to Ga. Hwy. 26, then bear W on 26 and stay on that road for 43 mi. When you enter Marion County, watch for the mile marker signs: after mile marker 15, take the next road to the left, Mt. Zion Rd. Stay on that road for about 3 mi., until you come

to Frank Powell Road, then turn left. Go about one mi. until you see a house on the left with a green “585” address sign; Matthew’s house is directly across the road from that house, so look off to the right for his house – it has a red metal roof -- some distance from the road.

One last suggestion from Matthew: “For anyone who might want full service hookups for their RVs, there’s a campground less than 5 min. away. As for tent campers, there’s plenty of room, but about 10 RVs is the limit on my property without people being on top of each other.”

We aren’t suggesting that you ignore our Cox Field observings, which are always memorable when **Larry H.** has chowed down on burritos at Maria’s – but if you like the idea of a free weekend star party, Deer Run is certainly a viable option.

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This ‘n That. We recently received an e-mail from everyone’s favorite ex-FRACster, **Katie Moore.** Katie is presently working on her master’s degree at George Washington University and living in Washington, D.C. Katie has a project that she hopes FRAC members will be interested in doing during March.

“Wanted to let you know about a program called **GLOBE at Night** that FRAC might want to participate in,” Katie wrote. “GLOBE at Night is a collaboration between the National Optical Astronomy Observatory (NOAO), the International Dark Sky Assn. (IDA) and several others to get people outside to look at the night sky, *Orion* in particular, during **March 8-21, 2007**, and report on the limiting magnitude they observed at their location. It might be something FRAC members are interested in doing from their homes and other observing sites, including Cox Field, to compare the amount of light pollution in different spots... People all around the world will be doing the same thing and contributing their data to map light pollution across the globe. Information about the project can be seen at <http://www.globe.gov/GaN>. (You can also read about the **Globe at Night** project in the *April, 2007*

*issue of Sky & Telescope in an article by **Fred Schaaf**, “Count Light Pollution Out,” pp. 42-50.)*

“Now in its second year,” Katie continued, “Globe at Night is expanding to also include the use of “Sky Quality Meters” which are basically photometers that measure the sky brightness. These are being used in several locations, and I am coordinating the campaign for the D. C. area. The leaders of the project are people from NOAO with whom I used to work in Tucson.

“I am more than halfway through my master’s degree in Museum Education – I finish at the end of July – and it has been such a great learning experience for me. I’m currently an intern with the Association of Science–Technology Centers here in D. C., and I’m taking courses on exhibition design, grant writing and general museum education, plus I just signed up for an online course in Space Science Education and Public Outreach. I’m busy like crazy, but with a master’s program that only lasts a year, you have to stuff everything in somehow, and it is all stuff that I am passionate about, which makes the work more manageable.

“As part of the Globe at Night program, I attended a conference in D. C. this week sponsored by the IDA, called the Night Symposium, which brought together people interested in astronomy, biology, ecology, energy, engineering, government, human health, outdoor lighting and urban planning to share what is going on related to reducing light pollution. I got the chance to talk with **Bob Gent** (former president of the A.L. and vice president of IDA’s Board of Directors). Needless to say, it was exciting to run into him and catch up a little bit since my Horkheimer Award days. (*Editor’s Note: In 2000, Katie won first prize in the the A. L.’s “Horkheimer Award for Exceptional Service to Astronomy By a Young Astronomer.”*)

“I hope that all is well in Griffin and with FRAC, and that y’all are having some clear, dark nights to observe this winter. Every now and then I can spot *Orion* and *Sirius* from a ‘dark’ spot on campus that’s not completely surrounded by tall buildings covering the sky. I took my binoculars out to the Lincoln Memorial (the spot with the best western horizon I can get to) a few months back when that comet was supposed to be visible around sunset, but didn’t have

any luck due to clouds and haze over northern Virginia. I do find myself missing Cox Field or Tucson (*Katie earned her b.s. degree in astronomy from the Univ. of Arizona. –Ed.*) every now and then when I wish I could be out with a telescope or I hear about something really neat happening in the sky that people are observing. I'd love to hear how things are going for FRAC, and if any of you have any questions about the Globe at Night program. –Katie.”

Katie's e-mail address is: ksm3442@gmail.com .

*Don't forget to pay your FRAC dues, and to register for the Ga. Sky View. (You can use the registration form on our web site.)

***Yr. editor** can't believe that, after more than a dozen years of pursuing faint fuzzies of every size, shape, description and color, he hadn't observed the prettiest star in the Milky Way, **Hind's Crimson Star (R Leporis)**, until **Curt** showed it to us at our most recent Cox Field observing. Hey, folks, if you haven't seen it yet, you just gotta go after this one because, for once, the guys who name celestial objects hit it right on the head! This lovely variable star (which is named for the man who discovered it in 1845, the British astronomer **J. R. Hind**), looked to be about mag. 9.5, was “as red as a ruby” (**Larry Higgins**) – and best of all, it's remarkably easy to find. Just go from *Alpha Leporis* through and beyond *Gamma Leporis* for about half as far as they are apart, and presto!, there it is! **Curt** could see it in his 10x50 binocs, so maybe its brightness was a tad more than yr. editor estimated it to be.

*Speaking of **Curt**, at 8:59 p.m. on the evening of Feb. 21st he was “out in my backyard ..looking down at a chart in my lap (when I) became aware of a bright light above me. It's common to have small planes come over on approach to Tara Field, so I didn't think much of it but looked up anyway. It was a very bright meteor that burned out just as I looked up. I estimated its brightness at mag. 8-10, heading WNW, from *Canis Minor* or *Gemini*. It really lit up the place, brighter than the moonlight shining on my lap, and left a smoke trail.”

An ex-FRACster, **Jamie Jenkins**, saw a different “bolide – or maybe space junk?” -- at 9:18 p.m. the following evening: “I just happened to be making a cell call in the yard at that time, looked up at just the right moment and caught the whole train. From my perspective, the meteor began several degrees to the right and above the top of the **Big Dipper**, which was standing upright on its handle at the time. The meteor appeared inclined at about 40 degrees of horizontal. The train changed shade at least twice, finally turning brilliant green and ending with a very bright flash.”

*An astrophoto of a star-forming region of **Pelican Nebula (ICs 5067-70)** by ex-FRAC member **Scott Hammonds** appears in the Mar. '07 issue of *Sky & Telescope* (p. 97).

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The Sky In March. **Venus** (mag. -3.9) will be in the W sky for 2-3 hrs. after sunset in March. **Saturn** (mag. 0.0) will be up all night. **Jupiter** (mag. -1.9) will rise around midnight. **Mercury** (mag. 0.4) and **Mars** (mag. 1.2) will lie on either side of the crescent **Moon** at midmonth, but be sure to avoid the rising **Sun** if you're using binocs or a telescope to observe them.

Two rather faint comets, **Petriew (P/2001 Q2)**, mag. 10-11 as it fades) and **2P/Encke** (mags. 11-8 as it brightens) will be up; *Astronomy* (p. 50) shows where to find them on **Mar. 15th**.

The total lunar eclipse of Mar. 3rd that **yr. editor** neglected to tell you about in the Feb. *Observer* will have already come and gone by the time you're reading this. Oh well, we'll catch the last half of another one on the morning of Aug. 28th, and all of a third total lunar eclipse occurring on the evening of Feb. 21st, 2008.

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Observing Report: Larry Higgins

(Editor's Note: Larry, whose observing skills are second to none, has done it again: He saw – but let's have Larry tell about it.)

“Feb. 10, 2007, 10:50 a.m.

“Telescope: Meade 2080 refractor

“Eyepieces: Meade 26mm Super Plossl

“Transparency good, seeing sporadic

“Eureka!, one for the books! I’ve been in astronomy for 16 years, and *this* is the first time I’ve ever seen **Jupiter** in the daytime! It was roughly 60 degrees – three outspread pinky-to-thumb widths held against the sky – to the right of the Sun, its disk a diffuse, pale white with a single central band visible occasionally during moments of good seeing. I tracked it till 11:20 a.m., when I lost it in a contrail.”

Later the same day, at 4:15 p.m., Larry tracked down another, relatively easier – but still difficult -- planetary target that he has seen many times before in daylight: a gibbous **Venus**, his ‘scope showing it to be only slightly less than full.

On a clear day, Larry says, you can see Venus (mag. -3.9) naked-eye as a tiny pinpoint of light if you know exactly where to look and have the patience to find it. Jupiter, on the other, at mag. -1.9 doesn’t normally stand out well against the blue sky unless you have extremely acute vision.

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Musings of a Newbie

article by Joel Simmons

I’ve been a shutterbug for many years. I’ve read everything I could get my hands on, subscribed to ‘way too many photography magazines, attended seminars on subjects I already had knowledge of, and spent ‘way too much money on my hobby.

About two months ago, I read an article on how to take pictures of the **Moon**. I had never considered the Moon a photographic subject, so I thought I would give it a try. I was blown away by my early results! After more research, I realized that here was a new and fascinating challenge: astrophotography.

Everything I read relating to beginning astronomy suggested finding a local astronomy club. To my surprise, a web search turned up FRAC. I expected to find a club in Atlanta, but, living as I was in McDonough, I wasn’t really interested in having to go into the Big A. So I e-mailed **Curt**, and he responded promptly.

When I attended the Jan. FRAC meeting, I was impressed by the group’s enthusiasm and desire to help a raw beginner. My second meeting reinforced my initial impression even moreso.

As I suppose all beginners do, I have been watching the weather like a hawk. Every night that the sky has been even remotely clear I’ve been out with my binos, trying to learn the night sky. I’ve had limited success but am still trying. A few of my photos have turned out pretty nice.

On my first night at Cox Field, I was completely alone out there. (*Where were you guys?*) The clouds weren’t too bad, so I waited awhile until it got real dark. An elderly gentleman – I suppose it was Mr. Cox – showed me where the group usually sets up. I was about to leave when a very bright light popped out from behind a cloud in the western sky. At first, I thought it was an airplane, but after watching it for a few seconds I realized that it wasn’t moving. Then the crescent Moon slid out just above the bright light. I took a few photos and left.

When I got home, the interactive star chart at the *Sky & Tel* web site indicated that I had witnessed a three-day-old Moon and **Venus**. It was a special moment for me, and one I am sure I will never forget.

I anticipate many more such rewarding experiences of that nature and hope to make a contribution to the club. I want to thank everyone for your warm welcome to FRAC, and I look forward to involving myself in what I know is going to be a very steep learning curve.

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The Fine Art of Drawing Nebulae: Part Two

article by Rich Jakiel

(Editor’s Note: Part One of this article appeared in the Feb., 2007 issue.)

Learning Values and the Art of Smudging.

Beginners are rightfully concerned about the technical and aesthetic aspects of their works. Fine detail requires practice in observing skills, but what about that delicate, nebulous look? Drawing nebulae

requires two important skills, *estimating values* and *smudging*.

“Values” are nothing more than intensity levels of color or gray. Since deep-sky objects generally don’t display intense coloration, we’ll concentrate on the gray scale.

While we can distinguish millions of colors, most of us have trouble discerning more than 40 levels of gray. With that in mind, drawing even ten different gray levels can be tricky. You can practice by making a value scale of ten equal gradients. Here’s how:

Take a ruler and draw two parallel lines about 5” long; connect them to form a bar, and sub-divide them into ten equal parts. Now make a value scale starting from pure white and ending in pitch black in equal steps of increasing intensity. This sounds easy, but it can be quite challenging the first few times you try it.

Once you’ve mastered the value scale, try your hand at smudging. It’s easy to do: have you ever accidentally brushed your hand across your drawing?

There are two main techniques. The first requires nothing more complicated than the tip of your finger. The other uses a *blending stump*—a cloth-covered pencil that can be found in a variety of sizes at any art supplies store. The results are similar, but not quite the same. The finger method produces a coarser, more mottled smudge than a blending stump does. For very fine detail, the blending stump is superior.

Smudging should be a gradual process; it’s best not to start out with too much graphite or charcoal. Instead, slowly *build* the image like a time-exposure photo “builds” the light it receives. Hold your pencil at a shallow angle and move it in a circular motion. Hard, dense lines don’t smudge or erase well. Using a blending stump, start working the media to get a hazy, nebulous appearance. Add another layer with your pencil, and continue with more smudging. With time and practice, you can achieve a “3-D” look. When you have time, try experimenting with smudging techniques in concert with an eraser. Don’t be afraid to copy galaxies or nebulae from photos, or even to design a few of your own. Your drawing skills will improve with practice.

While learning to sketch, here are a few helpful tips: *Keep your fingers dry and grease-free. Don’t mix blending stumps (i.e., keep the white and black*

charcoal separate). And always “fix” your drawings with a fixative; after all, you don’t want the smudging to continue after you’re done!

Field Sketch Preparations. Once you have gathered your supplies and practiced basic skills, it’s time for a few preparations. First, I generally advise choosing a target that’s not too large or intricate; save those objects for later when you have honed your skills.

In making field sketches, you should mark off an area on each sheet of paper for your object. Some observers like to draw circles several inches in diameter to represent the eyepiece field of view (fov). However, some objects overflow the normal fov, and may stretch across several eyepiece fields. In contrast, many planetary nebulae are very small and may get “lost” in a large circle that represents the entire fov of that eyepiece. Be flexible: choose an area on your paper that will best frame that particular object.

After you have marked off the area to be used, leave some space for technical information, including: object designation (e.g., **NGC 891**), the date, telescope used, magnification or eyepieces, filters (if any), object magnitude/size, etc. I often include a short written description plus interesting notes that might be useful when I transfer the drawing into my permanent notebook.

Time to Solo! You are now at the telescope and have centered a nice galaxy in the eyepiece. You are “chomping at the bit,” ready to make a drawing. Don’t rush into it, but take time and **observe** the galaxy. Note how the brighter stars are arranged around the object; draw them first. They will serve as a frame and points of reference for your drawing.

Next, *lightly* sketch in the outlines of the galaxy, and note other details such as dust lanes, mottling and the brightness of the core. Try not to be influenced by any biases you may have, but simply draw in the details you can see. Now, using your pencil, lay down a thin layer of graphite. Start smudging the area and continue to build the image with more graphite until you reach the desired density. Here’s where your eraser comes into play: roll one end into a point, and

use it to “draw” dust lanes, knots and mottling textures. You will find these techniques useful for every type of deep-sky object.

If a deep-sky object is particularly complex, don't be afraid to add notes or draw in added details on your field drawing. Sometimes the starfields can be incredibly complex. If they appear overwhelming, don't get frustrated by trying to position every star. Star charting software like **Megastar** and **TheSky** can be marvelous labor-saving devices. Generate a star atlas of the area, and sketch in only the nebula.

Finally: this isn't supposed to be a masterpiece; accuracy is more important. Save your best artistic efforts for the final copy of your drawing.

The Finale. After a long night of deep-sky drawing, you may wish to transfer your efforts into a bound drawing book. At home, you can spend the extra time perfecting the image while it is still fresh in your mind. Using utmost care, copy the details of the field sketch. Once the drawing has been completed, use a fixative to keep it from smearing.

Although I've never stressed the ease of “negative” drawing for field work (i.e., black stars on a white background), feel free to try out other techniques and media. After you have finished the final copy, don't discard the original field drawings; they are the truest record of what you saw. Keep them for future reference.

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Even Solar Sails Need a Mast

by Patrick L. Barry

Like the explorers of centuries past who set sail for new lands, humans may someday sail across deep space to visit other stars. Only it won't be wind pushing their sails, but the slight pressure of sunlight.

Solar sails, as they're called, hold great promise for providing propulsion in space without the need for heavy propellant. But building a solar sail will be hard; to make the most of sunlight's tiny push, the sail must be as large as several football fields, yet weigh next to nothing. Creating a super-lightweight material for the sail itself is tricky enough, but how do you

build a “mast” for that sail that's equally light and strong?

Enter SAILMAST, a program to build and test-fly a mast light enough for future solar sails. With support from NASA's In-Space Propulsion Program to mature the technology and perform ground demonstrator tests, SAILMAST's engineers were ready to produce a truss suitable for validation in space that's 40 meters (about 130 feet) long, yet weighs only 1.4 kilograms (about 3 pounds)!

In spite of its light weight, this truss is surprisingly rigid. “It's a revelation when people come in and actually play with one of the demo versions—it's like, whoa, this is really strong!” says Michael McEachen, principal investigator for SAILMAST at ATK Space Systems in Goleta, California.

SAILMAST will fly aboard NASA's Space Technology 8 (ST8) mission, scheduled to launch in February 2009. The mission is part of NASA's New Millennium Program, which flight tests cutting-edge technologies so that they can be used reliably for future space exploration. While actually flying to nearby stars is probably decades away, solar sails may come in handy close to home. Engineers are eyeing this technology for “solar sentinels,” spacecraft that orbit the Sun to provide early warning of solar flares.

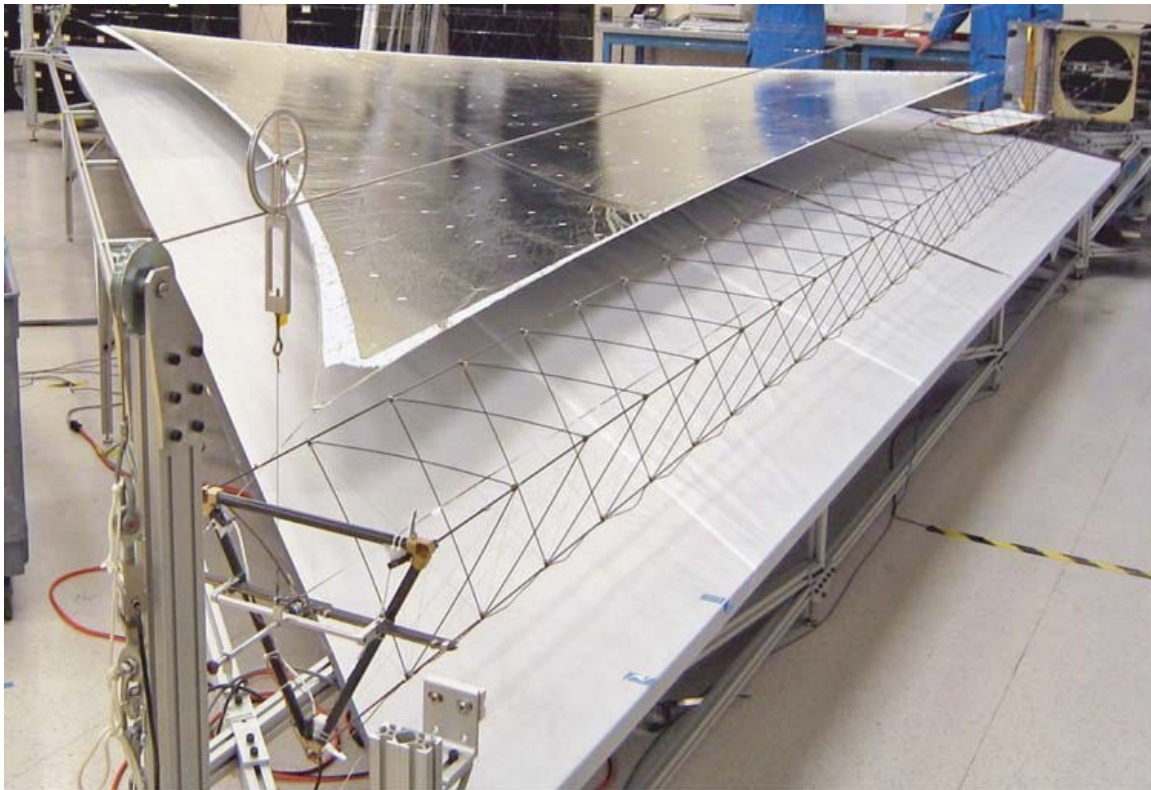
Once in space, ST8 will slowly deploy SAILMAST by uncoiling it. The truss consists of three very thin, 40-meter-long rods connected by short cross-members. The engineers used high-strength graphite for these structural members so that they could make them very thin and light.

The key question is how straight SAILMAST will be after it deploys in space. The smaller the curve of the mast the more load it can support. “That's really why we need to fly it in space, to see how straight it is when it's floating weightlessly,” McEachen says.

It's an important step toward building a sail for the space-mariners of the future.

Find out more about SAILMAST at nmp.nasa.gov/st8. Kids can visit spaceplace.nasa.gov/en/kids/st8/sailmast to see how SAILMAST is like a Slinky® toy in space.

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



Caption:

SAILMAST is the thin triangular truss in front of the picture. It is attached to a section of a silver foil solar sail section shown here in a laboratory test. The mast in the picture is 2m (6 ft) long. The Space Technology 8 mission will test the SAILMAST, which is 20 times longer.