



# GoodardView



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## “Star Trek” Actor Enjoys Tour of Hubble Facilities

By Barbara L. Scott



*Caption: Connor Trinneer holding an Extra Vehicular Activity (EVA) tool wearing Astronaut gloves*

Connor Trinneer was invited by Barbara Scott (Code 441) to come to Goddard for a tour of the Hubble Space Telescope (HST) facilities while in the area for a local science fiction convention, and he enthusiastically accepted. Trinneer portrayed the Star Trek® Enterprise® Chief Engineer Charles “Trip” Tucker for its four season run (2001–2005).

On Friday, July 7, his whirlwind tour began at the Integration and Test (I&T) facilities in Buildings 7 and 10 with Jim Jeletic, and continued with Justin Cassidy, inside the Building 29 Clean Room where he saw the HST servicing mission hardware. The morning concluded with a tour of the Hubble Mission Operations Room in Building 3 provided by Mike Prior. Following a quick lunch, Jim Jeletic, Ken Carpenter, and Maurice Henderson briefed Trinneer on the new “Science on a Sphere” demonstration located in the Gallery Theater at the GSFC Visitors Center. Trinneer was appreciative of all those who shared with him what they do at Goddard.

HST Project personnel provided Trinneer with hundreds of details of HST operations, servicing hardware, and science results. His comment when realizing that Hubble was only part of Goddard’s total mission was, “If you show me anything else I think my head will explode.” Trinneer then gave of himself for the next four hours as he led a lively and thoroughly entertaining special summer edition of an Engineering Colloquium.

What may have been a surprise to the audience was what little engineering and descriptive guidance an actor receives from the Star Trek designers and technical writers on how the ship is supposed to work. Trinneer commented that it would have been helpful if he had the opportunity to tour Goddard prior to beginning the role of “Trip.”

Trinneer graciously signed autographs and posed for photos with fans following the Colloquium and again at the picnic at the Barney and Bea Recreation Center that was open to all GSFC employees and their families.



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[Cover Caption: Connor Trinneer \(left\) and his tour guide](#)

[Justin Cassidy prepared to enter the Clean Room to view HST hardware being readied for a possible HST servicing mission.](#)

[Photo Credit: Chris Gunn](#)

## GoddardView Info

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Deadlines: News items and brief announcements for publication in the *Goddard View* must be received by noon of the 1st and 3rd Wednesday of the month. You may submit contributions to the editor via e-mail at [alittle@pop100.gsfc.nasa.gov](mailto:alittle@pop100.gsfc.nasa.gov). Ideas for new stories are welcome but will be published as space allows. All submissions are subject to editing.

# Goddard Scientists See the Storm Before the Storm

By Christopher Wanjek

In February 2006, a well-known but admittedly nondescript, little binary star system named RS Ophiuchi (RS Oph), woke up. For a few days, the system was even visible to the naked eye. Scientists and amateur astronomers alike naturally turned to watch the show.

The last time RS Oph acted up was in 1985. Such an event only happens every 20 years or so and lasts about a month. For scientists, it is an opportunity to study what causes outbursts in two-star systems.

The Goddard Astronomy Club caught it optically with binoculars just after its peak brightness, having to contend with a string of cloudy nights, the bane of amateur astronomy. Goddard scientists observed RS Oph from opposite sides of the electromagnetic spectrum—in lower-energy infrared and high-energy x-ray. What they found just might rewrite the astronomy textbooks.

RS Oph was long thought to contain a red giant and a white dwarf. A red giant is a star similar to our Sun nearing the end of its life cycle. Similarly, a white dwarf is a star like our Sun that has run out of hydrogen fuel and whose outer layers have floated away, leaving a dense core about the size of the Earth.

Gas from the bloated red giant spills onto the white dwarf, builds up on its surface, and from time to time will ignite in a thermonuclear blast. This is what happened in RS Oph in early February.

All of that was expected and indeed confirmed, but then the observation got interesting. Goddard's Koji Mukai was part of a team who observed RS Oph with the Rossi X-ray Timing Explorer. As relayed in the July 20 issue of *Nature*, his team "weighed" the white dwarf and found it was very close to the critical mass needed to explode as a Type Ia supernova.

Type Ia supernovas are an important class of star explosions used to measure the expansion rate of the universe. When the white dwarf accumulates enough mass, about 1.4 solar masses, it will obliterate itself.

Because a precise amount of mass is involved, every white dwarf Type Ia supernova in the universe shines at a unified, known luminosity. As a result, Type Ia supernovas are used as mileage posts across the universe. The apparent brightness, as opposed to its absolute brightness, is a direct measure of distance.

"It is surprising that RS Oph contains a precursor to a Type Ia. Only the tiniest fraction of white dwarfs become Type Ia," Mukai said, "and here's one in our backyard." Even more surprising is that the system contains a red giant. Such stars are rich in hydrogen, yet a key feature of Type Ia explosions is that the remnant has little or no hydrogen. RS Oph demonstrates that more than one kind of binary could be the source of Type Ia supernovas.

## Did You Know?

### Scratch Resistant Lenses:

Plastic lenses use NASA's plasma polymerization technique to make lenses lighter, cheaper, stronger, and virtually shatterproof. ■

Goddard's Richard Barry was part of the infrared observation with the Infrared Optical Telescope Array (IOTA), in Arizona. His group confirmed the presence of a red giant and may have for the first time resolved two objects in such a binary system with IOTA's sharp "interferometer" eye. Infrared data also indicate that the white dwarf might transform itself into a red giant for a few days during the outburst.

The white dwarf probably still needs hundreds of thousands of years to accumulate the final bit of mass before going supernova. In cosmic time, however, this is a time bomb ready to blow.

What's exciting today is that scientists have a laboratory to study a Type Ia precursor. Type Ia supernovas are called "standard candles," and they are indeed rather similar (like all the 100-watt light bulbs in a single package), but there are slight variations. By studying RS Oph in many wavelengths, we can begin to understand what causes variations among the supposedly standard bulbs. This, in turn, will give us better confidence in measuring distances in the universe, one of the most important topics in cosmology. ■

## The Secret Life of Goddard Employees Highlighted at Goddard Day 2006!

Edited by Elaine Firestone



Caption: Fred Blonder

**Around 1980, Fred Blonder was a grad student at the University of Maryland at College Park. His office mate was involved with a rather unique organization called the Longship Company—a group that does medieval Viking ship reenactments.**

Photo credit: TMS

**Fred heard all about what they do and eventually decided to go for a voyage. He has been involved continuously ever since then.**



Caption: Sae Hrafn, She isn't really quite this light and well balanced.

"At Goddard, I work for SAIC in the Networking Group in Building 14. I do software development, and track down systems that are generating unauthorized network traffic directed at the Network Operations Center firewall." That is pretty important work here, but what Fred really loves to talk about is the Longship Company and the ships themselves.

The Longship Company is a nonprofit educational group that has been operating replica Viking ships since the 1970s. In 2000, they took the ship *Fyrdraca* to L'Anse Aux Meadows in Canada for the big Viking millennium event.

Besides reenactments, just what does one do with a replica Viking ship? "We've been on the History Channel three times, most recently in a bit-part in 'Mysteries of the Freemasons,' a couple of weeks ago." Of course, photos abound on their Web site at <http://www.longshipco.org>

Fred said that last year they sold the *Fyrdraca* and bought a new ship, the *Sae Hrafn*, which is 10 feet longer than the old one. Longship Company now has two Viking ships that they sail in the Chesapeake region, although they have also taken them to Baltimore, Canada, and other places, in addition to exhibiting them at local festivals and schools.

Fred doesn't just sail on the Longship vessels though. He also was one of the crew on the Trireme *Olympias* (<http://www.atm.ox.ac.uk/rowing/trireme>) in Greece in 1990, and then again in London in 1993.

Fred's interest in history goes way beyond medieval ships. First, he was instrumental in putting together a time-capsule as a celebration of the Tricentennial of the founding of Prince George's County in 1996, and he convinced Susan Wolfe, the curator of the historic Marietta House in Glen Dale to work on it. "Unfortunately, I didn't think of it until about 1998, so it [the time capsule] didn't actually get into the ground until 2001." Some photos of this can be found at: <http://www.gsfc.nasa.gov/gsfic/news/060801/060801.htm#capsule>.

Second, he directs a historical dance group called *Thrir Venstri Fœtr*, which is Old Norse for "Three Left Feet." For more information on the dance group, visit their Web site at: <http://www.wam.umd.edu/~eowyn/3LF/index.html>.

There are practical uses, too, for a replica Viking ship. When Jack Connerney (Code 695) got married in Annapolis about 10 years ago, he and his bride were carried from the wedding to the reception aboard the *Fyrdraca*. Fred says, "he's not an active member of Longship, but it makes a good story." ■

Photo courtesy of Fred Blonder

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# The Secret Life of Goddard Employees Highlighted at Goddard Day 2006!

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Photo courtesy of Fred Blomberg

**Ed Cheung works in Code 442 on the Hubble Space Telescope (HST) Development Project. He has built hardware that was installed on HST during the previous three Servicing Missions.**

*Caption: In front of the Space Shuttle Columbia for STS-109*

**His passions outside of work include refurbishing and playing pinball machines. ■**



Photo courtesy of Ed Cheung

*Caption: In addition to actual pinball machines, Ed has made a few pieces of pinball furniture including this pinball coffee table. This nonworking machine is an example of pinball machines used for artwork and decoration. A complete and working play field was added to this coffee table.*

*It is widely believed by collectors that the Space Shuttle pinball machine saved the pinball industry in the mid-80s. It was the first to combine multiball, spoken voice, ramps, and a playfield toy (the Shuttle) into one machine. It temporarily halted the decline of the pinball industry, and many more machines were made after that.*

Photo courtesy of Ed Cheung

*The playfield of the Space Shuttle machine features a graphic of the HST. Note that HST was launched five years after this machine was made. Parts of Ed's Space Shuttle machine has been signed by such NASA luminaries as John Grunsfeld, Mike Massimino, Gene Kranz, and Gunther Wendt.*



Photo courtesy of Ed Cheung

*Caption: Before (Above) and after (Below) picture of the restoration of the Space Shuttle machine.*



Photo courtesy of Ed Cheung

*Caption: Ed's collection of pinball machines*

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## The Secret Life of Goddard Employees Highlighted at Goddard Day 2006!

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Photo courtesy of Jack Shue

**With two bachelors degrees—a BFA (Fine Arts) in photography and a BEE (Electrical Engineering)—Jack Shue, an electrical engineer who works in Code 563, seems to be a well-rounded person**

**who is well versed in both science and art. His interests, though, also extend to the scientists and engineers of NASA’s next generation. He is always looking to find out what makes kids get into science and engineering—especially applied engineering—as a career, and is always looking to find a way to make them interesting to kids.**



*Caption: Four of the 10 marble rings that are on the beach and are used for the National Marbles Tournament in Wildwood NJ*

“I estimate that I talk to close to 1000 students each year,” he says. “This year, I’m mentoring a group of high school students. I also try to do one or more science fairs each year, and last year I helped review grant proposals for the State of Maryland.” Shue participates each year in National Engineers Week, which includes visiting schools to coach teachers on getting students interested in NASA science and engineering projects.

—ASK Magazine, NASA, Vol. 16

Through his son, he got involved with the game of Marbles (he’s heard all the jokes about losing his, by the way), and got an idea while at the National Marbles Tournament.

Apparently, there was a problem with the size of gauges used to check the players “shooters” (one of the marbles). Although a strict standard existed for the size of the shooter, there wasn’t a standard instrument used to check the size. Jack got the idea of using this engineering problem to spur the interest of the children (ages 7–14) in NASA and the career opportunities that exist here, by possibly creating a gauge and then giving out the NASA-sponsored gauges to the children.

His proposal to Public Affairs was accepted and a colleague (Mike Ryschkewitsch) helped Jack get the funding. Mike also got the idea to have the National Institute of Standards and Technology (NIST) calibrate the gauges. The gauges have both the NASA and NIST logos on them as well as the words “GO” and “NO GO” under the two holes in the gauge. As word got out, instead of the one gauge Jack originally asked for, the count was up to more than 60.

It was suggested that an astronaut be chosen to give out the gauges to the next tournament’s finalists. Astronaut Tony Antonelli would be there to do this honor and he would spend the entire day at the tournament. Then-Center Director Al Diaz also came and he requested a gauge for former NASA Administrator Sean O’Keefe. Everyone from NASA wore some kind of NASA clothing, and Tony even wore his blue flight suit. “A largely volunteer effort that had required little investment on the Agency’s part had indeed captured the imagination of youth. And there was another, unforeseen payoff, as well—the project had sparked the enthusiasm of a good number of people at NASA and NIST along the way.



*Caption: Astronaut Tony Antonelli presents gauges to finalists*

Watching the presentation of the gauges was the closing of a satisfying, yearlong endeavor for me.”

—ASK Magazine, NASA, Vol. 16

For more information on the National Marbles Tournament—and to get some photos go to <http://www.nationalmarblestournament.org>. ■

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# The Secret Life of Goddard Employees Highlighted at Goddard Day 2006!

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*Caption: Rob Gutro and his faithful companion Dolly*

**Rob Gutro works in NASA Goddard Public Affairs, and one nickname some people have for him is “Superman” (for a couple of reasons). Interestingly enough, he is one of only two employees to come to work (on Halloween) dressed as a superhero. This past year, he walked the halls as Superman\*, which is timely considering that the release of the movie “Superman Returns” was on June 28.**

“I’ve been a superhero fan since I was a kid, and have been collecting comic books since 1974,” he said. They inspired him to read and write his own stories, and now he’s both a public affairs officer and a meteorologist, and writes about NASA’s Earth science research.

Whenever topics get complicated, sometimes people will say to Rob “This looks like a job for Superman.”

A couple of years ago, he and former NASA employee Melinda (Young) Monks teamed up for a Batman\* and Batgirl\* NASA appearance at Halloween. Last summer, he donned the Batman outfit for his co-worker’s twin sons’ Batman-themed 5th birthday party.

This year, over the weekend of June 11th, he and his dog (a weimaraner) won 1st place in a Dog-and-Owner dress-alike contest at Ellicott City, Maryland’s “Dog Days” event. He was Superman, and his dog Dolly was dressed as Krypto\* the Superdog. “It was a little unnerving walking down a main street in a Superman outfit, but after saying hello and waving to people, it was easy and fun,” he said. His philosophy is that life is too short not to enjoy it.

Rob loves to communicate. He enjoys talking about weather for one thing. Lately he has been speaking to schools, museums, and on the radio about NASA’s research on hurricanes.

He worked in radio for 20 years part time, including having weekend country music radio shows in places such as Annapolis and Nashville. He worked as a broadcast meteorologist at the Weather Channel and one of the stations he broadcast on was WTOP News Radio in Washington, DC. As a result, when he came to work at NASA, people knew his name. He also wrote, hosted, and produced one year’s worth of educational TV shows about weather for a Kentucky cable channel. He has worked for NOAA, and done public affairs work for a hurricane season at the National Hurricane Center.

To share any heroic NASA Earth science research and get it into the general public, or talk about weather, e-mail Rob at [Robert.J.Gutro@nasa.gov](mailto:Robert.J.Gutro@nasa.gov)—no cape is necessary.

\*“Superman,” “Batman,” “Batgirl,” and “Krypto the Superdog” are all copyrighted and registered trademarks of DC Comics. ■

Photo courtesy of TIMS

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## Goddard Day 2006!

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Photo credit: Chris Gumm



Photo credit: Deborah McCallum

### Car Contest Winners:

1st place: #11 Ray McGaha (1930 Ford Vicky)

2nd place: #4 Cheryl Flett (1967 Chevy Camaro)

3rd place: #2 Ron Frederick (1971 Chevy Chevelle)



Photo credit: Chris Gumm



Photo credit: Chris Gumm

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# Goddard Day 2006!

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Photo credit: Deborah McCallum

**Cooking Contest Winners:** Pam Carmody won “Best Cookie or Brownie” for her Triple Chocolate Chip Cookies; Stratton Karahalias’ Trifle won in the “Best Cake” category; Ratna Sengupta had the “Best Pie”—Mango Pie; the “Best Chocolate Dessert” went to Jeff Schmaltz for his Gold Rush Brownies and Tomi Cox’s Baklava was the “Best Ethnic Dessert.” Each winner received a personalized acrylic plaque, a medallion, and coupons to two local restaurants. ■



Photo credit: Deborah McCallum



Photo credit: Deborah McCallum

## Can We Talk

By Sharon Wong



Photo credit: NASA  
Caption: Ed Weiler

In observance of National Gay and Lesbian Pride Month, Goddard employees within the gay, lesbian, bisexual, and transgender (GLBT) community met with Center Director Ed Weiler as part of the “Can We Talk” dialogue.

Attendees raised various issues surrounding GLBT employees and their partners.

Management responded to inquires about benefits for the partners of GLBT employees by saying that while many companies, including those competing with Goddard for high-quality employees, provide benefits for domestic partners of their employees, the Federal government does not. Attendees discussed whether a National Employee Benefit Association (NEBA)—like health insurance program (i.e., an employee operated association that offers low cost, high quality, insurance policy programs), could be developed. The GLBT Advisory Committee agreed to investigate this route and to work to gain support from other NASA Centers to proceed forward with this action.

Attendees also asked about the status of a parallel process for handling discrimination complaints based on sexual orientation, similar to Equal Opportunity (EO), complaints.

Many Federal agencies, such as the Departments of Justice, Interior, and Commerce have processes in place, but NASA does not.

While there are avenues to bring forth discrimination complaints based on sexual orientation, limitations exist within these procedures, e.g., the Merit Systems Protection Board can only appeal certain personnel actions, and non-selection (the action most grieved) is not one of them. Goddard leadership took the action to pursue this matter with Headquarters.

Another topic of discussion centered around the Family Friendly Leave Act (FFLA), which authorizes most employees to use paid sick leave each year for family care or bereavement purposes. Attendees were concerned that GLBT employees may not be aware that they are able to take this leave. The Office of Human Capital Management (OHCM) has clarified the definition on their Web site.

Center Director Ed Weiler will be hosting the “Can We Talk” discussions throughout the remainder of the year in the spirit of NASA’s commitment to enhance communication. While there are additional channels such as the Ombuds Program, the Equal Opportunity Program, Alternative Disputes Resolution (ADR), Program and others for raising individual/personal issues and concerns, the “Can We Talk” sessions are an opportunity for employees to share with the Center’s leadership regarding what’s on their minds regarding issues/concerns affecting the NASA/GSFC community, or questions on Center matters.

The sessions are intended to provide constructive dialogue that will respond to existing anxieties and heightened concerns of employees and to achieve improved communications within NASA. These informal dialogues are held each month, and have no agenda or set topics. The “Can We Talk” sessions are open to all employees including contractors and civil servants.

Stay informed by visiting <http://internal.gsfc.nasa.gov/canwetalk.cfm> to attend and register for the next “Can We Talk.” ■

## Employee Spotlight: Dr. Magdi Said

By Alana Little



Photo credit: David Stuchlik

Caption: Dr. Magdi Said

**Dr. Magdi Said's career has spanned a total of 17 years with the bulk of it spent establishing and managing the Balloon Research and Development Lab at Wallops Flight Facility. Over the years, the lab provided unique capabilities for developing and characterizing thin polymeric and composite films for terrestrial and planetary balloon applications.**

What exactly are NASA balloons? Well, the NASA balloons, referred to as "scientific balloons," are made of a thin polyethylene material, "about the same thickness as an ordinary sandwich wrap," according to the Balloon FAQ sheet. Scientific balloons are very large, ranging up to 40 million cubic feet in volume and 600 feet in diameter, when fully inflated. They are easily taller than a 60-story building. The system includes a balloon, a parachute, and a payload that carries instruments necessary to conduct a scientific experiment. The FAQ sheet states that a fully inflated scientific balloon can "carry a payload weighing as much as 8,000 pounds, which is about the weight of three small cars."

We are always looking for ways to provide scientists with more capabilities to enable new sciences and new missions, said Dr. Said. Recently, Wallops technologists have developed a new balloon instrumentation package called the Command Data Module (CDM) capable of supporting 100-day balloon missions. Other technologies currently under development, include the Ultra Long Duration Balloons (ULDB), the Trajectory Control System (TCS), as well as various planetary balloon activities. These existing and emerging technologies have positioned Wallops to become the pioneer in this field.

**One of the key benefits of using balloons for scientific measurements is that they offer relatively low cost access to space when compared to other carriers—a fact that Dr. Said is very proud of. Experiments flown on balloons provide information on the atmosphere, the universe, the Sun, and the near-Earth space environment.**

The Balloon Program also offers numerous education and outreach activities. Recently, undergraduate researchers from The Pennsylvania State University, Montana State University, the University of Alabama, and Auburn University, sent a payload aboard NASA's Deep Space Test Bed gondola. The experiment was designed to study cosmic radiation at the very edge of space. Over time, it will help NASA develop new means of protecting hardware and human crews as America ventures further into the cosmos. The test flight is part of NASA's Space Radiation Shielding project. The Balloon Program also provides a unique opportunity for students of all ages through the Student Experiment Module on Balloons (SEM-B) activities. SEM-B has enabled students from around the country to prepare and fly their experiments on NASA balloons, fostering inspirational hands-on learning activities. These exciting opportunities enable students to become members of the NASA team and encourage them to pursue course work and careers in related technical fields.

"The field is very unique," replied Dr. Said when asked about his passion for his work. "The international Balloon community is very small; we all know one another."

Scientific Balloons are not Dr. Said's only interest. Currently, he holds the title of Chair of Code 800's Diversity Working Group. Code 800 is one of the leading codes in diversity planning and implementation at Goddard. "We've captured the interest of other codes throughout the Center," said Dr. Said. With the endless support of Dr. Campbell, Wallops' Director, Code 800 has been able to institute a comprehensive diversity plan and to track a number of key implementation measurements. Under Dr. Said's watch, the Diversity Working Group has also started a series of random employee interviews aimed at finding out how employees feel about their personal development goals. All interviews are completely random and are given in a confidential setting. "This has been helpful in getting 'real' feedback [from the employees]," offered Dr. Said.

Dr. Said is famous for saying that "diversity is the spices we add for flavoring our life," and he definitely walks the talk. ■

## Intern Spotlight: Clifford Simmons

By Debbie Jensen



Caption: Clifford Simmons

**Clifford Simmons of Code 612.4, joined the Goddard family as an intern this summer working with the Space Physics Data Facility, which studies Coronal Mass Ejections (CMEs), and other space weather phenomena.**

With the launch of *Discovery*, and NASA's continued manned spaceflight efforts, along with maintaining the numerous in-orbit satellites, scientists and engineers must strive to predict as accurately as possible space weather phenomena, including solar winds and Coronal Mass Ejections (CMEs), now more than ever before. CMEs are bursts of gasses and plasma ejected from the Sun that may harm astronauts and damage satellites.

Simmons works with data mining the information gathered from satellites observing the Sun's activity and solar weather. Data mining is analyzing large amounts of information to find trends. For example, Simmons could be analyzing satellite data to see if there is a cycle for how often the Sun emits a CME. "Data mining applications can be used for anything [from science to business]," Simmons said.

**This project allows Simmons to brush up on the skills he learned in his college courses such as EX-CEL, C++, and other computer applications.**

"Living with other students is also an invaluable part of the intern experience," Simmons said. This intern program is teaching him how to live and work with new people. Simmons has become friends with students from other schools, and with different backgrounds and hometowns.

Simmons, a senior from Harlem, N.Y., studies mathematics at Morehouse College in Atlanta, Ga., a Historically Black College. He participates in the Strategic Preparedness Advancing Careers in Engineering/Science (SPACE) program, a collaborative effort between NASA and Morehouse College. The SPACE program also offers scholastic support to Morehouse students who have shown academic excellence in the science, technology, engineering, and mathematics (STEM) disciplines. ■

Photo credit: Pat Izzo