



# MARSHALL STAR

Serving the Marshall Space Flight Center Community

Aug. 28, 2008

## NASA renames GLAST observatory for Enrico Fermi

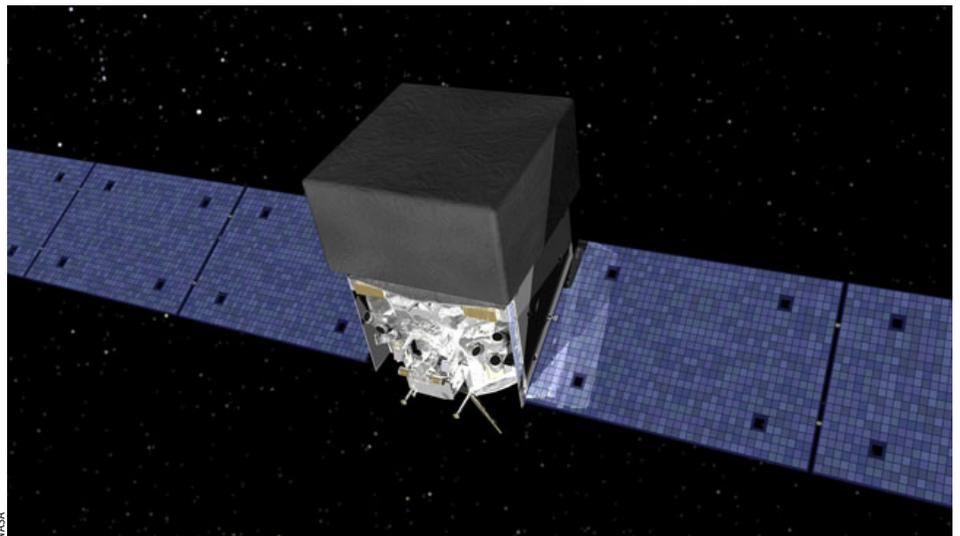
*NASA news release*

NASA's newest observatory, the Gamma-Ray Large Area Space Telescope, or GLAST, has begun its mission of exploring the universe in high-energy gamma rays. The spacecraft and its revolutionary instruments passed their orbital checkout with flying colors.

NASA announced that GLAST has been renamed the Fermi Gamma-ray Space Telescope. The new name honors Enrico Fermi (1901-1954), a pioneer in high-energy physics.

"Enrico Fermi was the first person to suggest how cosmic particles could be accelerated to high speeds," said Paul Hertz, chief scientist for NASA's Science Mission Directorate at NASA Headquarters in Washington. "His theory provides the foundation for understanding the new phenomena his namesake telescope will discover."

Scientists expect Fermi will discover many new pulsars in our own



Artist rendering of the Fermi Gamma-ray Space Telescope.

galaxy, reveal powerful processes near supermassive black holes at the cores of thousands of active galaxies and enable a search for signs of new physical laws.

*See GLAST on page 6*

## NASA Mars lander digs deeper as third month nears end

Digging by NASA's Phoenix Mars Lander on Aug. 23 reached a depth about three times greater than in any trench Phoenix has excavated.

Toward the left of the photo is the deep trench, informally called "Stone Soup." Stone Soup is at the borderline between two of the polygon-shaped hummocks that characterize the arctic plain where Phoenix landed.



*From www.nasa.gov*

The next sample of Martian soil being grabbed for analysis is coming from a trench about three times deeper than any other trench NASA's Phoenix Mars Lander has dug.

Phoenix is designed to study the history of water and habitability potential in the Martian arctic's ice-rich soil.

On Aug. 26, the spacecraft finished the 90 Martian days, or "sols," originally planned as its primary mission and will continue into a mission extension through September, as announced by NASA in July. Phoenix landed on May 25.

"As we near what we originally expected to be the full length

*See Phoenix on page 3*

### You are building a lasting legacy

I ran across a NASA news clip recently that really caught my attention. It was an Aug. 3 article in The Telegraph-Calcutta newspaper in India. The reporter calls NASA's "conquest of space" "one of the wonders of modern science," but questions the benefits accruing to science and mankind from the Apollo program beyond "the development of the hand-held vacuum cleaner, better golf balls, Teflon-coated fiberglass and many other items of modern life."

I couldn't disagree more.

For fifty years, NASA has been a catalyst of innovation, and its impact here and around the world has been nothing short of transformative. The pursuit of the near impossible has given birth to new technologies, new industries, new markets and new possibilities that simply didn't exist before.

In its "2008 Space Report," the U.S. Space Foundation estimated the space economy at \$251 billion worldwide, with more than half coming from commercial products and services. The growing space economy has affected how we live, work and play, delivering benefits touching virtually every aspect of our lives. The impact of the space economy is felt every time we use an ATM, use our GPS, pay for gas at the pump and, yes, use a hand-held vacuum cleaner.

But that's not all. Spin-offs in the field of medicine have enabled life-saving advances in diagnosis and treatment. More than 1,000 inventions from the space program have benefited us here at home. But the benefits of the space economy run much deeper than spin-offs. The banking, finance, retail and shipping industries all depend on space and satellite transmissions for the smooth operation of their businesses, and they form the backbone of our economy.

When other economic sectors have faltered, the space economy has been a job creation machine. In fact, job growth in the U.S. space industry has outpaced job growth in the private sector overall, contributing 266,700 jobs across the country at pay levels roughly twice the national average. Today's aerospace industry employs more than 150,000 Alabamians, with a payroll of \$6.16 billion. Space

workers in the state of Alabama are making the nation's third highest average annual wage behind space workers in Virginia and California.

In FY 2007, the Marshall Space Flight Center generated more than \$1.1 billion in economic impact for Alabama, \$2.7 billion for the U.S. economy. In the same period, NASA invested more than \$113 million in academic institutions and non-profits across the United States. Twenty million dollars went to



David King

Alabama educational institutions and non-profits, enhancing economic growth and creating a highly educated work force — a valuable resource for area businesses and the local community.

If the space economy weren't delivering tangible economic benefits to the nations smart enough to exert a leadership share in it, why do you think India, home of The Telegraph, would be spending an estimated \$1 billion USD (at current exchange rates) on its own national space program? That's .56 percent of India's national budget — close to NASA's .6 percent — against a per capita Gross National Income of \$2,740 (v. our \$46,040). While India has made great strides since the early 1990s in creating a middle class, it still needs to get 836 million people out of extreme poverty, and it sees a robust space economy as one way to do that.

Thank you for your hard work and unwavering spirit. You are building a lasting legacy for our nation and our community for tomorrow and for generations to come.

*David A. King*  
*Director, Marshall Space Flight Center*

# NASA attorneys to speak at Federal Bar Association meeting; to share legal insight involved in carrying out NASA's mission

NASA Headquarters attorneys will be among the speakers at the Federal Bar Association's annual national convention at the Von Braun Center in Huntsville on Sept. 18-20.

The association of private and government attorneys and judges in federal practice has more than 16,000 members nationwide in more than 80 local chapters. The North Alabama Chapter covers the Tennessee Valley and has more than 50 members, including nine Marshall Space Flight Center employees.

Among the NASA employees scheduled to make presentations at the convention are NASA's General Counsel Michael Wholley and several members of his staff from NASA Headquarters in Washington. They include Sumara Thompson-King, associate general counsel for the Contracts and Procurement Practice Group; Richard W. Sherman, associate general counsel for the Commercial/Intellectual Property Practice Law Group; R. Andrew Falcon, associate general counsel for the General Law Practice Group; and E. Jason Steptoe, associate

general counsel for the International Law Practice Group.

A number of attorneys from the Marshall Space Flight Center's Office of the Chief Counsel are involved in planning the convention, including Lou Durnya, who is serving as publicity and events chair; Kathy Shelton, continuing legal education co-chair; Devinti Williams, continuing legal education for government acquisition chair; and Jim McGroary, continuing legal education for government acquisition co-chair.

The convention program will include a panel presentation with an overview and specific analysis of legal issues involved in NASA's mission to return to the moon, and travel on to Mars. Legal training in criminal and civil litigation, and government acquisition also will be offered to attendees.

Marshall employees interested in attending the national convention may visit [http://www.fedbar.org/H08\\_home.html](http://www.fedbar.org/H08_home.html) for more information.

## Phoenix

### *Continued from page 1*

of the mission, we are all thrilled with how well the mission is going," said Phoenix Project Manager Barry Goldstein of NASA's Jet Propulsion Laboratory, Pasadena, Calif.

Phoenix's main task for Sol 90 is to scoop up a sample of soil from the bottom of a trench called "Stone Soup," which is about 7 inches deep. On a later sol, the lander's robotic arm will sprinkle soil from the sample into the third cell of the wet chemistry laboratory. This deck-mounted laboratory, part of Phoenix's Microscopy, Electrochemistry and Conductivity Analyzer, or MECA, has previously used two of its four soil-testing cells.

"In the first two cells we analyzed samples from the surface and the ice interface, and the results look similar," said JPL's Michael Hecht, lead scientist for MECA. "Our objective for Cell 3 is to use it as an exploratory cell to look at something that might be different. The appeal of Stone Soup is that this deep area may collect and concentrate different kinds of materials."

Stone Soup lies on the borderline, or natural trough, between two of the low, polygon-shaped hummocks that characterize the arctic plain where Phoenix landed. The trench is toward the left, or west, end of the robotic arm's work area on the north side of the lander.

When digging near a polygon center, Phoenix has hit a layer of icy soil, as hard as concrete, about 5 centimeters, or 2 inches, beneath the ground surface. In the Stone Soup trench at a polygon margin, the digging has not yet hit an icy layer like that.

"The trough between polygons is sort of a trap where things can accumulate," Hecht said. "Over a long timescale, there may even

be circulation of material sinking at the margins and rising at the center."

The science team had considered two finalist sites as sources for the next sample to be delivered to the wet chemistry lab. This past weekend, Stone Soup won out. "We had a shootout between Stone Soup and white stuff in a trench called 'Upper Cupboard,'" Hecht said. "If we had been able to confirm that the white material was a salt-rich deposit, we would have analyzed that, but we were unable to confirm that with various methods."

Both candidates for the sampling location offered a chance to gain more information about salt distribution in the Phoenix work area, which could be an indicator of whether or not liquid water has been present. Salt would concentrate in places that may have been wet.

While proceeding toward delivery of a sample from Stone Soup into the wet chemistry laboratory, Phoenix is also using its Thermal and Evolved-Gas Analyzer to examine a soil sample collected last week from another trench, at a depth intermediate between the surface and the hard, icy layer.

The Phoenix mission is led by Peter Smith from the University of Arizona with project management at the Jet Propulsion Laboratory, and development partnership at Lockheed Martin, Denver. International contributions come from the Canadian Space Agency; the University of Neuchatel, Switzerland; the universities of Copenhagen and Aarhus in Denmark; the Max Planck Institute in Germany; and the Finnish Meteorological Institute. The California Institute of Technology in Pasadena manages the Jet Propulsion Laboratory for NASA.

# NASA Silver Snoopy Award recipients recognized for significant contributions to spaceflight missions

By Megan Norris Davidson

Not even Tropical Storm Fay could stop STS-124 astronauts from presenting the prestigious NASA Silver Snoopy Awards on Aug. 19 to a group of deserving Marshall Space Flight Center civil service and contractor employees.

Originating in 1968, the Silver Snoopy Award is recognized as the "astronaut's personal award," and is given to individuals who have performed an outstanding effort contributing to the success of manned spaceflight missions. Recipients are given a silver pin depicting Snoopy, the famous pup from the comic strip "Peanuts," as an astronaut. All the pins have flown on a previous space shuttle mission. Awardees also receive a framed certificate and a congratulatory letter personally signed by astronauts.

STS-124 crew members Ron Garan, Akihiko Hoshide and Mark Kelly, who braved inclement weather to make the flight from Houston, presented the awards to this year's Marshall Center winners. For the special ceremony at the Davidson Center for Space Exploration at the U.S. Space & Rocket Center in Huntsville, Marshall Center Director Dave King joined the astronauts for the presentation.

Honorees were Brooke Boen, Schafer Corporation; Wayne Bordelon, the Marshall Engineering Directorate; Alicia Carroll, William Gentry, Carol Jacobs, Lewis Maddux, Tim Owen and Ann Towry, Shuttle



David Higginbotham/MSCF

STS-124 astronauts and Silver Snoopy recipients are, from front left, astronaut Akihiko Hoshide, Karen M. Francis, Clementene Pearson, Gail Murphree Grafton, Donna L. Holland, Tammy K. Knight, Ann S. Towry, Brooke Boen, Shirley S. Chandler, Alicia S. Carroll, astronaut Ron Garan and astronaut Mark Kelly. From back left are Tim Owen, Ernest M. Graham, Chad Woods, William J. Gentry, Wayne J. Bordelon, Carol D. Jacobs, Robert C. Hawkins, Louise Raybon, Lewis Maddux, Ronald G. Sedam, Kathy Dunn, Tommy W. Guerin and Jeff Ehmen.

Propulsion Office; Shirley Chandler, Office of Strategic Analysis & Communications; Kathy Dunn, Louise Raybon and Ronald Sedam, Teledyne Brown Engineering; Jeff Ehmen, Office of Human Capital; Karen Francis, SEI Group; Gail Murphree Grafton, CH2M Hill; Ernest Graham, Office of the Director; Tommy Guerin, Greenway; Robert Hawkins, Jacobs Engineering; Donna Holland, Office of Center Operations; Tammy Knight, Office of the Chief Counsel; Clementene Pearson, EG&G; and Chad Woods, Bastion Technologies Inc.

*Davidson, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

## Obituaries

**Henry McDonald Pirtle**, 73, of Athens died June 29. He retired from the Marshall Center in 1989 as a construction representative. He is survived by his wife Marie Pirtle.

**Virgil H. Rogers**, 93, of Athens died July 17. He retired from the Marshall Center in 1974 as an electronics technician.

**John Wilder Jr.**, 84, of Guntersville died July 24. He retired from the Marshall Center in 1974 as a supervisor supply specialist.

**Howard Wilson Drake**, 83, of Huntsville died July 31. He retired from the Marshall Center in 1985 as a general supply specialist. He is survived by his wife Jean Maze Drake.

**Amos Clinton Black**, 75, of Athens died Aug. 9. He retired from the Marshall Center in 1974 as an aerospace engineering technician. He is survived by his wife Ella "Ruth" Dubois Black.

**William R. Reynolds**, 70, of Huntsville died Aug. 9. He retired from the Marshall Center in 1990 as an engineer. He is survived by his wife Jacqueline M. Reynolds.

**Oran Ben Hunter**, 82, of Huntsville died Aug. 10. He retired from the Marshall Center in 1988 as a program analyst. He is survived by his wife Hazel Shelton Hunter.

**Jack Gilstrap**, 87, of Huntsville died Aug. 15. He retired from the Marshall Center in 1985 as a configuration logistics specialist. He is survived by his wife Peggy Bliss Gilstrap.

# Moving toward NASA's 50th anniversary ...

Although NASA did not officially open until Oct. 1, 1958, events were already in motion in August and September that would help the agency prepare for business. On Sept. 24, 1958, NASA Administrator Dr. T. Keith Glennan and NASA Deputy Administrator Dr. Hugh L. Dryden held their first senior staff meeting. The new space agency would immediately incorporate several existing national organizations recognized for their expertise in aeronautics and space flight. The National Advisory Committee for Aeronautics, created in 1915, was one of those organizations. Two years later, about 4,000 employees from the Army Ballistics Missile Agency in Huntsville would form the new Marshall Space Flight Center.



## Classified Ads

*To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Sep. 4, is 4:30 p.m. Thursday, Aug. 28.*

### Miscellaneous

- 130 red bricks, will need wheelbarrow to load, \$25. 325-5866
- Ficus trees; floral pedestals; Queen Anne chair, hunter green; floral arrangements. 457-3114
- Oval oak dining room table, six chairs, photos available, \$400. 776-7399
- Ice hockey gloves, pants, elbow pads, skates. 777-8229
- Cast-iron outdoor fireplace, can deliver to Huntsville/Madison/Arsenal area, \$50. 541-0425
- Valhalla Masonic Garden, four plots, \$4,000 plus transfer. 881-9421
- Strauss & Son antique upright piano, \$200; shabby chic white iron bed, queen, \$500. 990-3561
- Weed Eater wheeled/handheld trimmers, Scotts drop spreader, tow-behind aerator/drop spreader. 479-9762
- LEER hard top truck bed, white, cover fits 1997-1999 F-150, \$125. 508-9991
- Mirage speakers, two OM-7 towers, two Omnisat satellite speakers, stands, \$1,500. 679-2165
- Texas Hold'em/Black Jack card table, \$100. 509-0256
- Smart Cycle, four games, \$75; child's motorized gator, \$75; wooden train set/table, \$50. 679-4459
- Two electronic bark control collars, \$40 obo. 509-2536

- Lincoln AC Stick Electrode Welder, 225 amp, extras, \$190 obo. 353-7670
- Twin bunk bed, red, blue, yellow, mattresses, <http://www.furnitureontheweb.com/NoFrame/Items/002252nf.html>, \$200. 683-1525
- Motorola prepaid cell phone, 100 minutes remaining, \$45. 527-8116
- 16-inch Camaro wheels, off a 1984 Camaro, \$175. 931-308-1238
- 36-inch TV, stand, \$200; pool table; dining table light, \$100. 883-0795
- Easy Shaper Buns, Thighs & Abs exerciser, workout video, \$25. 882-3326
- DeWalt cordless drill 14.4 V battery charger. 881-6887
- Michelin 215x65R16 tires, four, blackwall, \$25. 721-0331
- Pearl percussion bell kit, for beginning band, \$200. 882-3753
- 10 Ping G10 graphite-shafted irons, green dot, regular Flex 4-LW, \$700. 337-4180
- Chair, ottoman, \$150. 783-4866
- Lane three-drawer chest, \$40; Selmer Mark VI Tenor saxophone, \$6,500. 539-5439
- Craftsman 6-inch jointer/planer, extra knives, stand, casters, other accessories, \$250. 883-6563
- Sony Playstation Portable, two games, case, charger, extended battery, \$100. 683-3211

### Vehicles

- 2008 Mitsubishi Eclipse, 5k miles, \$17,000. 990-3162
- 2007 Mitsubishi Eclipse, red, black interior, five speed, four cylinder, sunroof, 25k miles, \$16,900. 776-8785
- 2005 Ford Five Hundred Limited, pueblo gold, AWD, moon roof, leather, 44k miles, \$15,000. 975-1667
- 2003 Kawasaki KFX400, \$2,500; 1998 Yamaha Warrior 350, \$2,000. 205-429-3805
- 2003 Harley-Davidson Sportster XLH1200, black, 100th anniversary edition, \$6,500 obo. 425-3727
- 2002 Suzuki XL-7, seats seven, \$8,000 obo. 783-6278

- 2002 Dodge Grand Caravan SE minivan, DVD, leather, chrome wheels, electric sliding doors. 852-6952
- 2001 Honda CRV LX, black/gray, new timing belt/battery, 105k miles, \$7,900. 883-6894 or 468-6894
- 2001 Jeep Cherokee, red, \$6,000. 603-3466
- 2001 Kawasaki Bayou 300 4x4 four wheeler, \$2,700. 828-9798
- 2000 Lincoln Town Car Signature Series, leather, all options, 48k miles, \$10,000. 461-7411
- 1999 Toyota 4-Runner Limited Edition, white, brown interior, sunroof, CD, A/C, \$7,000. 694-1260
- 1999 Tropicale 35-foot motor home, \$17,000 obo. 797-8322
- 1998 Chevy Cheyenne 1500, extended cab, new air conditioner, tool box, bedliner, \$4,500. 783-4850
- 1998 Toyota Land Cruiser, silver, oak interior, recent updates, power, 85k miles, \$17,000. 407-721-5315
- 1997 Ford Ranger, V6, assume \$5,000 loan. 658-6353
- 1993 Ford Mustang LX, 5.0 Coupe, black, gray interior, CD, \$4,800 obo. 656-2650
- 1993 Toyota pickup, DLX, 4x4, regular cab, 4-inch suspension lift, oversized tires, \$4,500 obo. 227-4612
- 18-foot enclosed trailer, cabinets, \$2,500. 975-4691

### Wanted

- Auburn vs. Georgia football tickets, Nov. 15, not upper deck. 430-6897
- Motorcycle luggage, golf ball display case. 777-8229
- 410-gauge shotgun shells, any shot size or slugs, 2 1/2 or 3 inches. 828-1234
- Houses/offices to clean, available evenings/weekends. 777-8595
- Two Alabama vs. Auburn football tickets, Nov. 29. 426-2417

### Free

- Kittens, to loving homes, litter box trained. 539-5315
- 3-year-old purebred German Shepherd, female. 425-1914

# GLAST

Continued from page 1

For two months following the spacecraft's June 11 launch, scientists tested and calibrated its two instruments, the Large Area Telescope — LAT — and the GLAST Burst Monitor — GBM.

The Large Area Telescope team unveiled an all-sky image showing the glowing gas of the Milky Way, blinking pulsars, and a flaring galaxy billions of light-years away. The map combines 95 hours of the instrument's "first light" observations. A similar image, produced by NASA's now-defunct Compton Gamma-ray Observatory, took years of observations to produce.

The image shows gas and dust in the plane of the Milky Way glowing in gamma rays due to collisions with accelerated nuclei called cosmic rays. The famous Crab Nebula and Vela pulsars also shine brightly at these wavelengths. These fast-spinning neutron stars, which form when massive stars die, were originally discovered by their radio emissions. The image's third pulsar, named Geminga and located in Gemini, is not a radio source. It was discovered by an earlier gamma-ray satellite.

Fermi is expected to discover many more radio-quiet pulsars, providing key information about how these exotic objects work.

A fourth bright spot in the Large Area Telescope image lies some 7.1 billion light-years away, far beyond our galaxy. This is 3C 454.3 in Pegasus, a type of active galaxy called a blazar. It's now undergoing a flaring episode that makes it especially bright.

The Large Area Telescope scans the entire sky every three

hours when operating in survey mode, which will occupy most of the telescope's observing time during the first year of operations. These fast snapshots will let scientists monitor rapidly changing sources.

The instrument detects photons with energies ranging from 20 million electron volts to over 300 billion electron volts. The high end of this range, which corresponds to energies more than five million times greater than dental X-rays, is little explored.

The spacecraft's secondary instrument, the GLAST Burst Monitor, spotted 31 gamma-ray bursts in its first month of operations. These high-energy blasts occur when massive stars die or when orbiting neutron stars spiral together and merge.

"Our job is to see the whole sky and identify burst locations well enough to tell the LAT where to look," said

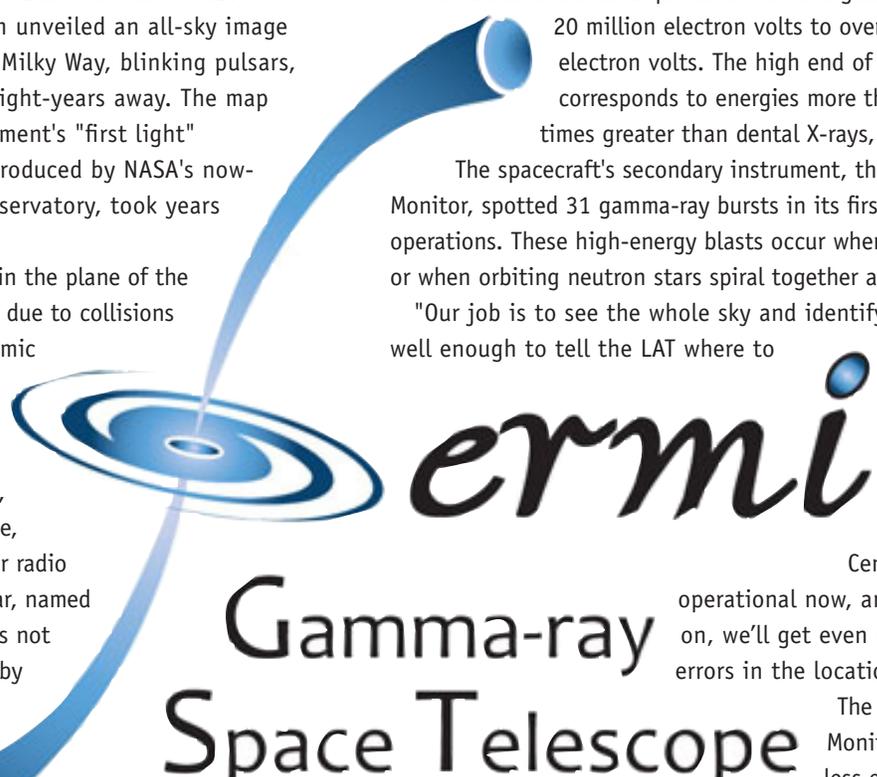
Charles Meegan, GBM's principal investigator at the Marshall Space Flight

Center. "We're operational now, and as time goes on, we'll get even better by reducing errors in the location measurement."

The GLAST Burst Monitor is sensitive to less energetic gamma rays than the Large

Area Telescope. Bursts seen by both instruments will provide an unprecedented look across a broad gamma-ray spectrum, enabling scientists to peer into the processes powering these events.

NASA's Fermi Gamma-ray Space Telescope is an astrophysics and particle physics partnership, developed in collaboration with the U.S. Department of Energy, along with important contributions from academic institutions and partners in France, Germany, Italy, Japan, Sweden and the United States.



# Gamma-ray Space Telescope

## MARSHALL STAR

Vol. 48/No. 48

Marshall Space Flight Center, Alabama 35812  
(256) 544-0030  
<http://www.nasa.gov/centers/marshall>

The Marshall Star is published every Thursday by the Public and Employee Communications Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Classified ads must be submitted by 4:30 p.m. Thursday, and other submissions no later than 5 p.m. Friday to the Marshall Public and Employee Communications Office (CS20), Building 4200, Room 102. Submissions should be written legibly and include the originator's name. Send e-mail submissions to: [intercom@msfc.nasa.gov](mailto:intercom@msfc.nasa.gov). The Star does not publish commercial advertising of any kind.

Manager of Public and Employee Communications — Dom Amatore  
Editor — Jessica Wallace



U.S. Government Printing Office 2008-723-022-20164

PRSRST STD  
US POSTAGE PAID  
HUNTSVILLE, AL  
PERMIT NO. 298