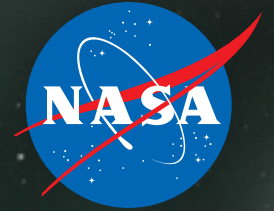


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Teddy Bear Comes Home After Journey Into Space

By Daniel Dale of the *Houston Chronicle*

Mark Polansky wanted to honor his Jewish father. So the NASA space shuttle commander worried a Jewish mother. Polansky's father, Irving, died in 2001. To pay tribute to him and raise awareness of the genocide in Darfur, Sudan, the astronaut asked the United States Holocaust Memorial Museum if he could take one of its artifacts on the *Discovery* mission in December. "It's probably the strangest phone call the museum ever got," Polansky said at the Washington museum Tuesday.

The museum gave Polansky, whose father's family emigrated from Russia in the early 1900s, a photo of a Darfurian child refugee. It also made him a replica of Refugee, the tiny teddy bear that a Holocaust survivor, Sophie Turner-Zaretsky of New York, was given by her mother in Poland after the war. The bear was donated to the museum by Turner-Zaretsky in 2002. When museum officials told her of Polansky's plan, she reacted with happiness and gratitude—and, naturally, fear.

"Now he has a Jewish mother," Turner-Zaretsky joked about Polansky, whose mother, Edith, is a native Hawaiian of Korean descent. Turner-Zaretsky had never spoken to Polansky until Tuesday, when the astronaut returned the bear in a ceremony at the museum. But she nervously monitored *Discovery's* status as if she'd had a relative aboard.

"I watched the [NASA] Web site every day and made sure they were OK," she said. "I worried when they delayed the flight [because of weather], and then I worried when he piloted it. And when he landed it, I think it was a Friday afternoon, I heaved a big sigh of relief." Turner-Zaretsky has spent much of her life worrying. Born in Poland in 1937, her family was forced into a ghetto by the Nazis in 1941. Her father was killed in 1942.

Turner-Zaretsky and her mother escaped the ghetto, survived the war by pretending to be Catholic, and fled Soviet rule by moving to England in 1948. But Turner-Zaretsky, who had come to believe she was Christian, was traumatized again when her mother told her they were Jews—people she had learned to despise. Then, in 1963, she had to start a new life once more, this time as a medical student in the United States.

Her bear was a mere 3 inches tall. Its eyes weren't quite aligned. But until she donated it to the museum, Refugee came with her every arduous mile she journeyed. Of course, the original Refugee can't compete with its replica.

"Traveled 5,330,398 miles," Polansky read from a certificate he gave Turner-Zaretsky. "In space for 12 days, 20 hours, 45 minutes. Not bad for a bear." ■

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Cover Caption: *Within seconds, the beams have eaten their way out of the star, and observers on Earth see it as a gamma-ray burst, GRB 060729A.*

Image Credit: *Aurore Simonnet SSU NASA E/PO*

GoddardView Info

Goddard View is an official publication of the Goddard Space Flight Center. It is published biweekly by the Office of Public Affairs in the interest of Goddard employees, contractors, and retirees. A PDF version is available online at:

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Managing Editor: Trusilla Steele

Editor: Alana Little

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. Ideas for new stories are welcome, but will be published as space allows. All submissions are subject to editing.

NASA and USGS Produce Most Detailed Satellite Views of Antarctica

By Gretchen Cook Anderson

Researchers from NASA and the U.S. Geological Survey (USGS), Golden, Colo., have woven together more than a thousand images from the Landsat 7 satellite to create the most detailed, high-resolution map ever produced of Antarctica. The Landsat Image Mosaic of Antarctica (LIMA) offers views of the coldest continent on Earth in 10 times greater detail than previously possible.

"These images give us incredibly detailed views of the Antarctic ice sheet surface and serve as maps for many locations that have never been mapped before," said Robert Bindschadler, Chief Scientist of the Laboratory for Hydrospheric and Biospheric Sciences at NASA's Goddard Space Flight Center. Bindschadler oversaw the selection of the scenes used to create the mosaic.

Researchers at NASA, the USGS, and the British Antarctic Survey in Cambridge, England, have launched a Web site with support from the National Science Foundation to offer public access to the image mosaic. This site contains original images and close-ups of various areas of Antarctica, all available for download. The research group will continue to release images through this summer.

"The resolution sensitivity of the Landsat sensor is well beyond that of even the most state-of-the-art digital camera," Bindschadler said. "It's able to record subtle variations in the ice sheet's surface that tell us more about ice sheet features, the flow of the ice sheet, and changes in the ice sheet's surface."

According to Bindschadler, researchers will have special interest in the new ability to zoom in on areas like Antarctica's dry valleys that lie between the ice sheets. To date, only aerial images of these locations were possible. The carefully collaged images that compose LIMA now provide clear, high-resolution images.

Through special processing of images captured by Landsat 7's Enhanced Thematic Mapper Plus sensor, scientists were able to produce a true color, nearly cloud-free view of Antarctica. For the process, researchers use specialized software to stack several images of various Antarctic locations to create one larger image. The researchers also arranged the images on top of one another in a sequence that allows clear views to the surface, removing the effects of clouds contained in some images.

"Having this capability is quite exciting. Using the Web portal, scientists as well as students, teachers, and others will be able to zoom in to a specific Antarctic region and adjust for various levels of detail," said Bindschadler. "This will be like having a room with a tremendous view, a detailed view from space aboard Landsat to peer down as if you were just above the ice sheet's surface."



Caption: IHY 2007 Opening Ceremony.

LIMA is one of more than 228 projects funded in conjunction with the International Polar Year, an initiative 63 co-operating countries launched in March to improve scientific understanding of Earth's polar regions.

The USGS manages the NASA-designed, Earth-observing satellites of the Landsat Program, first launched in 1972. During the past three decades, Landsat sensors have captured two million high-resolution digital photographs of Earth's continents and surrounding coastal regions, enabling scientists to study various aspects of the planet.

To view LIMA images on the Antarctic Portal, visit: <http://lima.usgs.gov>

For more information about Landsat, visit: <http://landsat.usgs.gov>

For more information about NASA and Agency programs, visit: <http://www.nasa.gov> ■

Harris Corporation Evaluating SpaceWire Router for Its Own Space Applications

By Nicole Quenelle

Through a new Space Act Agreement (SAA), NASA Goddard Space Flight Center is providing support to Harris Corporation to help the company's researchers understand how Goddard's SpaceWire link and switch "router" operates and the requirements for integrating it into the company's electronics. Once Harris gains familiarity with the router, the company will integrate the technology into its own aerospace electronics, specifically its Space Programmable Modem, enabling the connection of various digital technologies for communication in space.

Benefits of Technology Transfer

- Harris will benefit by absorbing knowledge and skill with the SpaceWire standard and router, positioning itself to be able to respond to future market needs for SpaceWire-based communication devices.
- NASA will benefit through reimbursement for researchers' time supporting Harris's efforts, demonstrating the value of SpaceWire technology to the broader aerospace industry.
- NASA also may benefit from the future potential availability of additional SpaceWire-based devices that may enhance NASA missions.
- While SpaceWire-based components remain limited, as more companies like Harris embrace the standard, availability and competition will increase, benefiting the aerospace industry as a whole.

About Harris Corporation

Harris is an international communications and information technology company serving government and commercial markets in more than 150 countries. Headquartered in Melbourne, Fla., the company's 14,000 employees, including more than 6,000 engineers and scientists, serve government, radio frequency, broadcast, and microwave communications markets.

Technology Origins

The SpaceWire specification is a set of serial links that describe a network fabric used to move information defined in packets. Specific to Goddard's SpaceWire design, the link and switch "router" is a unique implementation that enables avionics computers to communicate seamlessly at varying data rates (2 Mbps to more than 200 Mbps), minimizing interconnects. The communication allows resources to be distributed and provides for redundancy across spaceflight applications.

Developed in beta form in 2000, the protocol standard was released in January 2003 and was first implemented at NASA in 2004 on the SWIFT mission, a gamma-ray burst-alert telescope.

The Transfer Process

In October 2005, Harris was looking for a high-rate communication bus capable of integrating the company's Space Programmable Modem into a variety of space electronics. The company's researchers were familiar with Goddard's Glenn Rakow as the primary expert on SpaceWire in the U.S. The company contacted Rakow to begin discussions toward an agreement that would help Harris better understand the technology and its potential for their designs. Goddard's Innovative Partnerships Program Office assisted with agreement discussions, managing the final arrangements and logistics to arrive at a reimbursable SAA that would benefit the company and NASA.

Looking Ahead

As part of the agreement, Goddard will provide Harris researchers assistance in understanding and evaluating the SpaceWire router. Based on positive outcomes of the evaluation, the company expects to integrate the protocol into its Space Programmable Modem within a six-month time frame. Harris then will evaluate potential commercial opportunities for this and other possible devices within NASA and the larger aerospace industry. ■

Aeroflex to Implement Goddard's SpaceWire Router to Benefit Aerospace Electronics

By Nicole Quenelle

A new Space Act Agreement (SAA) between Goddard Space Flight Center and Aeroflex, Inc., will enable the company to develop a SpaceWire router with guidance from the NASA Center. The company will translate the multi-port router into application-specific integrated circuits (ASICs), enabling a variety of applications to connect through the router and communicate with each other, benefiting spaceflight applications for both organizations and the aerospace industry as a whole.

Benefits of Technology Transfer

- Aeroflex can benefit by building SpaceWire-based aerospace electronics for its own use and to sell to NASA and other organizations, creating a competitive advantage.
- NASA will benefit from being able to purchase ASICs from Aeroflex at a much more affordable rate than producing them in house.
- Multiple NASA missions may benefit from the ASICs provided by Aeroflex, such as the James Webb Space Telescope (JWST), Magnetospheric MultiScale (MMS) missions, and other satellite operations.
- Other Government organizations' work may benefit from the future availability of the new ASICs for space applications.
- Other aerospace companies and the industry as a whole may benefit from the increased availability of the SpaceWire router and integrated ASICs.
- NASA will benefit by promoting further industry acceptance and availability of SpaceWire-based aerospace electronics, providing a more competitive environment for aerospace parts and demonstrating the value of the technology to NASA and the industry.

About Aeroflex, Inc.

Aeroflex designs, manufactures, and markets a diverse range of microelectronic test and measurement products to support communication systems, networks, and automatic test systems. Based in Colorado Springs, Colo., the company has achieved much success in the semiconductor market through its advanced, space-qualified and radiation-hardened products for satellite communications.

Having developed a cost-efficient process for producing semiconductors capable of operating in the harsh environment of space, Aeroflex has earned a formidable reputation in the aerospace industry.

Technology Origins

The SpaceWire specification is a set of serial links that describe a network fabric used to move information defined in packets. Specific to Goddard's SpaceWire design, the link and switch "router" is a unique implementation that enables avionics computers to communicate seamlessly at varying data rates (2 Mbps to more than 200 Mbps), minimizing interconnects. The communication allows resources to be distributed and provides for redundancy across spaceflight applications.

Developed in beta form in 2000, the protocol standard was released in January 2003 and was first implemented at NASA in 2004 on the SWIFT mission, a gamma-ray burst-alert telescope.

The Transfer Process

Agreement discussions with Aeroflex began in 2005. The company had been familiar with Goddard's Glenn Rakow and his pioneering work with SpaceWire and promotion of the standard throughout the industry. The company worked with Goddard's Innovative Partnerships Program Office to negotiate an in-kind agreement that benefits both organizations, as well as current and future NASA missions.

Looking Ahead

Aeroflex is well positioned to create a competitive advantage through marketing SpaceWire-based aerospace electronics. As part of the agreement, Goddard will provide technical assistance for the company to build the SpaceWire router and integrated ASICs and will consult with engineers about the features NASA would like to see in the chips, helping to ensure that the end result will be beneficial to both organizations. The finished product is expected by 2008. ■

Federal Human Capital Survey Again Shows NASA is One of the Best Federal Agencies to Work For

By Pamela Guzzone

Last summer, a sample of Goddard employees, along with civil servants from 36 separate Federal agencies, were asked to complete the third biannual Federal Human Capital Survey. The objective of this survey is to assess the state of human capital management across the Federal Government. The survey is administered by the Office of Personnel Management (OPM) and the results are provided to Agency managers to aide in efforts to continually improve Agency management practices and enhance the work environment for employees.

NASA scored very well in both the 2002 and 2004 surveys and the results we received from the 2006 survey show that NASA is still one of the best Federal agencies to work for. Out of the 36 agencies in the survey, NASA was in the top three for each of the four major focus areas identified in the survey.

The survey instrument contained 84 questions; 11 questions gathered demographic information and the remaining 73 measured employee perceptions in four broad areas—leadership and knowledge management, results-oriented performance culture, talent management, and personal work experiences (including job satisfaction, learning environment, satisfaction with benefits, etc.). Against all the other agencies NASA ranked:

- Second in Leadership and Knowledge Management
- Third in Results Oriented Performance Culture
- Third in Talent Management
- Third in Personal Work Experiences

Overall, NASA had 59 items (questions) that were scored five or more points above the Governmentwide average and no items that were more than five points below the Government average. In addition, NASA had 41 items that the survey results showed as “strengths”; any question where more than 65% of respondents with a positive rating of more than 65% are considered strengths.

Many of the areas where NASA was significantly above the Government average support and reflect the areas where the Agency has focused in recent years, including safety and employee empowerment. For example:

NASA’s average was at least 15 points higher than the Governmentwide average on the following statements:

- “Employees have a feeling of personal empowerment with respect to work processes.”
- “Creativity and innovation are rewarded.”
- “I feel encouraged to come up with new and better ways of doing things.”
- “Employees are protected from health and safety hazards on the job.”

There were, of course, other areas where NASA was closer to the middle of the Governmentwide pack. The good news however, is that these are areas where we are already working to improve our capabilities. Some examples include the areas of recruitment—“My work unit is able to recruit people with the right skills”—and performance management—“In my work unit, steps are taken to deal with a poor performer who cannot or will not improve.” The Agency will continue to work to make improvements in these areas.

The specific results for Goddard quite closely mirror the Agencywide results, with most GSFC scores being within three percentage points of the NASA average. One area where GSFC generally scored slightly better than the Agency average was in the area of supervisor-employee communications; including an average three points higher than the Agency in response to the statement, “Discussions with my supervisor/team leader about my performance are worthwhile.” The Center has put a lot of focus on supervisor-employee relations in the last few years and it is good to see those efforts paying off.

On the whole, the survey results show, once again, its employees think NASA is a great place to work! If you would like to see the detailed results, please log onto the OHCM Web site at: <http://ohcm.gsfc.nasa.gov> and click on “Hot Topics”. ■

Did You Know?

Industrial Strength Tape:

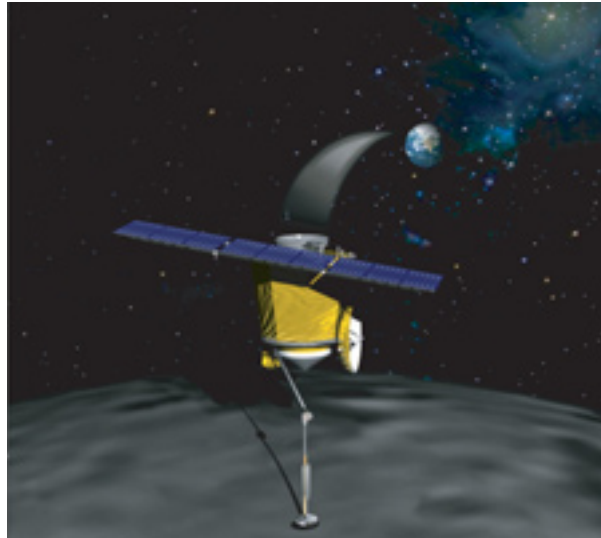
A tape made from glass cloth coated with aluminum was developed by NASA to protect electric instrument coils and fluid lines during rocket launches. This super-duty tape benefits industries from builders to car manufacturers.

Proposed Mission Will Return Sample from Near-Earth Object

By Bill Steigerwald and Lisa Stiles, The University of Arizona

A menacing lump of rock and dust in space called “10195” (1999 RQ36) would barely be noticed except for two crucial facts: first, “It’s a treasure trove of organic material, so it holds clues to how Earth formed and life got started,” said Joseph Nuth of NASA’s Goddard Space Flight Center. Second, it regularly crosses Earth’s orbit, so it might impact us someday.

Nuth is the Project Scientist for the proposed Origins Spectral Interpretation, Resource Identification and Security (OSIRIS) mission, which will “return a pristine sample of the scientifically priceless asteroid RQ36 to Earth for in-depth study,” said University of Arizona Lunar and Planetary Laboratory (LPL) Director Michael Drake, Principal Investigator for the proposed mission. The mission will be the first to return a sample of an asteroid to Earth. NASA Goddard is managing the project. Lockheed Martin is building the flight system, the sampling mechanism, and the sample return capsule. Lockheed Martin is also performing spacecraft operations.



Caption: This is an artist's concept of the OSIRIS spacecraft taking a sample of asteroid RQ36.

Image credit: NASA/University of Arizona

desk-sized, but that’s not easy to fly. Let alone the enormous synchrotrons, which dwarf cars and are impossible to fly,” said Jason Dworkin, also of NASA Goddard, who is the Deputy Project Scientist and a Co-Investigator on OSIRIS. “Furthermore, there are also a lot of steps to prepare a sample. That would all have to be automated and work perfectly on a spacecraft.”

“Also, you can’t respond to surprises with the limited equipment onboard a spacecraft,” added Nuth. “About thirty years ago, the Viking landers scooped

up a sample of Martian dirt and tested it for signs of microscopic life. The results were contradictory, and ever since then, there’s been a controversy over whether there really was life or whether it was just some kind of exotic chemical reaction.”

“If instead we were able to return samples to Earth, we could have tested the sample in other ways. And when technology improves, we just take samples out and test with the latest equipment. That’s what we’ll be able to do with the sample returned by OSIRIS.”

The OSIRIS team recently won a \$1.2 million award from NASA to develop a more detailed engineering study of how the mission will accomplish its scientific objectives. OSIRIS will launch in 2011, acquire a sample of RQ36 in 2013, and return it to Earth in 2017.

OSIRIS is both a mythological figure and an acronym. “O” stands for the scientific theme—origins. “SI” is for spectral interpretation, or taking images of the Near Earth Object (NEO) at wavelengths that will reveal its composition. “RI,” or resource identification, is surveying the asteroid for such useful resources as water and metals. “S” stands for security, learning how to predict the detailed motion of Earth-approaching asteroids.

“OSIRIS of Egyptian mythology is the god of life and fertility, the god who taught Egyptians agriculture,” said Dante Lauretta, OSIRIS Deputy Principal Investigator, also with the University of Arizona. “There’s an analogy to the proposed 21st century space mission. We’re looking at the kind of object that we think brought life to Earth; that is, objects that seeded Earth with early biomolecules, the precursors of life.”

Returning a sample to Earth will allow for a much more comprehensive study of the NEO, according to the team. “The equipment in my lab is small, merely

OSIRIS samples will be available to the worldwide community, so people with diverse skills and techniques can offer unique insights. “The Stardust mission returned samples of comet Wild 2 with a total weight of just a tenth of a milligram, but it is enough to be analyzed by researchers all over the world,” said Dworkin. “OSIRIS will return 150 grams—about 5 ounces. We’ll take it apart almost atom by atom. It will keep a lot of people busy for a long time.”

The mission will also help to better track the orbits of asteroids that might hit Earth by accurately measuring the “Yarkovsky effect” for the first time. The Yarkovsky effect is a small push on an asteroid that happens when the asteroid absorbs sunlight and emits heat. The small push adds up over time, and it is uneven because of an asteroid’s various surface materials, wobble, and rotation. There’s no sure way to predict an Earth-approaching asteroid’s orbit unless you can factor in how the Yarkovsky effect will change that orbit, according to the team. “It’s like trying to make a complex, banking shot in a game of pool with someone shaking the table and kicking the legs,” said Nuth.

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Gamma-Ray Burst Challenges Theory

Released By The Pennsylvania State University

In a series of landmark observations gathered over a period of four months, NASA's Swift satellite has challenged some astronomers fundamental ideas about gamma-ray bursts (GRBs), which are among the most extreme events in our universe. GRBs are the explosive deaths of very massive stars, some of which eject jets that can release in a matter of seconds—the same amount of energy that the Sun will radiate over its 10-billion-year lifetime.

When GRB jets slam into nearby interstellar gas, the resulting collision generates an intense afterglow that can radiate brightly in x-rays and other wavelengths for several weeks. Swift, however, has monitored a GRB whose afterglow remained visible for more than 125 days in the satellite's x-ray Telescope (XRT).

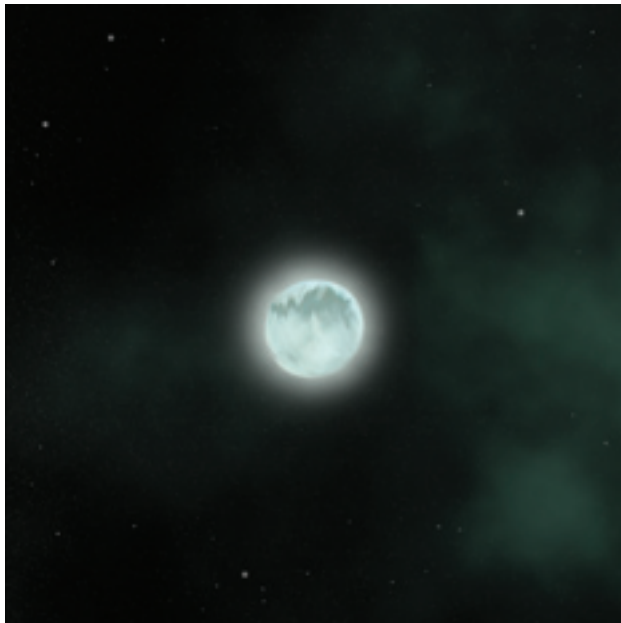


Photo credit: Aurora Simionel/SSU/NASA/EPO

Caption: The core of a massive star in a distant galaxy collapses, ending its life—though there is little effect visible at the surface. Deep inside, twin beams of matter and energy begin to blast their way outward.

Swift's Burst Alert Telescope (BAT) detected the GRB in the constellation Pictor on July 29, 2006. The XRT picked up GRB 060729 (named for its date of detection), 124 seconds after BAT's detection. Normally, the XRT monitors an afterglow for a week or two until it fades to near invisibility. But for the July 29 burst, the afterglow started off so bright and faded so slowly that the XRT could regularly monitor it for months, and the instrument was still able to detect it in late November. The burst's distance from Earth (it was much closer than many GRBs), was also a factor in XRT's ability to monitor the afterglow for such an extended period.

The slow fading of the x-ray afterglow has several important ramifications for our understanding of GRBs. "It requires a larger energy injection than what we normally see in bursts, and may require continuous energy input from the central engine," says astronomer Dirk Grupe of The Pennsylvania State University, University Park, Penn., and lead author of an international team that reports these results in an upcoming issue of the *Astrophysical Journal*.

One possibility is that the GRB's central engine was a magnetar—a neutron star with an ultra-powerful magnetic field. The magnetar's magnetic field acts like a brake, forcing the star's rotation rate to spin-down rapidly. The energy of this spin-down can be converted into magnetic energy that is continuously injected into the initial blast wave that triggered the GRB. Calculations by paper coauthor Xiang-Yu Wang of Penn State show that this energy could power the observed x-ray afterglow and keep it shining for months.

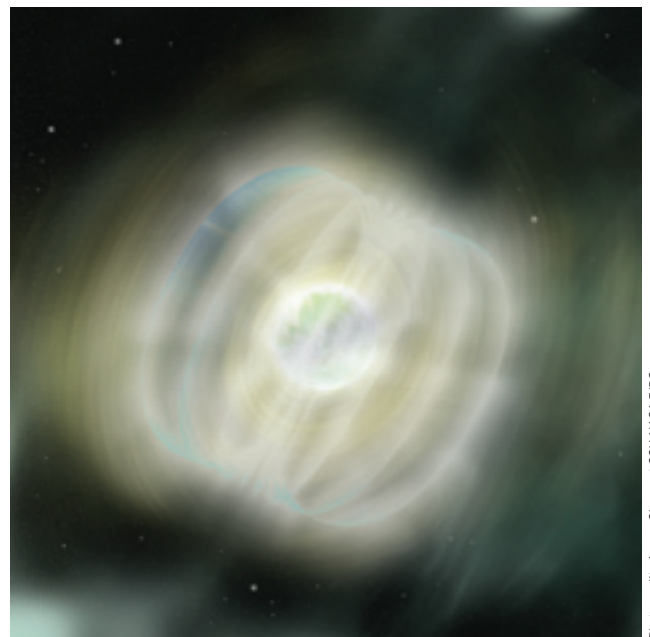


Photo credit: Aurora Simionel/SSU/NASA/EPO

Caption: Deep at the heart of this event, the core has shrunk into a fantastically dense magnetar, a neutron star possessing a magnetic field trillions or even quadrillions of times stronger than Earth's. The magnetism is what powers the long glow of x-rays seen by Earthbound scientists.

A burst observed on January 10, 2007, also suggests that magnetars power some GRBs. GRB 070110's x-ray afterglow remained nearly constant in brightness for five hours, then faded rapidly more than tenfold. In another paper submitted to the *Astrophysical Journal*, an international group led by Eleonora Troja of the INAF-IASF* of Palermo, Italy, proposes that a magnetar best explains these observations.

*Istituto Nazionale di Astrofisica—Istituto di Astrofisica Spaziale e Fisica cosmica

Continued on Page 10

International Heliophysics Year 2007

By Natalie Simms

Welcome to International Heliophysical Year (IHY) 2007, which kicked off February 19 in conjunction with the United Nations (U.N.) Science and Subcommittee meeting in Vienna, Austria. U.N. delegates and IHY participants assembled at an opening ceremony to formally announce the commencement of IHY 2007, chaired by Dr. Joseph M. Davila, Executive Director of IHY and Astrophysicist in the Solar Physics Branch at NASA's Goddard Space Flight Center.

IHY is built on the success of the International Geophysical Year (IGY), continuing the tradition of international science collaboration and its legacy of system-wide studies of the extended heliophysical domain.

Heliophysics is the study of the system composed of the Sun's heliosphere (the entire region of space influenced by the Sun and its magnetic field), and objects that interact with it—planetary atmospheres, magnetospheres, the solar corona, and the interstellar medium. The world's science community will congregate for an international program of scientific collaboration.

Dr. Madhulika Guhathakurta of NASA's Science Mission Directorate, Heliophysics Division and Chair of the International Living with a Star (ILWS) program, describes IHY as "a broad international effort to develop the

scientific understanding necessary to effectively address all aspects of the connected Sun–Solar system." She went on to explain that solar variability can affect space systems, human space flight, electric power grids, GPS signals, high frequency radio communications, long-range radar, microelectronics, and humans in high altitude aircraft, and terrestrial climate. "Prudence demands that we understand 'space weather,'" said Dr. Guhathakurta.

The goals of the IHY program are:

- Advancing our understanding of the heliophysical processes that govern the Sun, Earth, and heliosphere
- Continuing the tradition of international research and advancing the legacy on the 50th anniversary of the IGY
- Demonstrating the beauty, relevance, and significance of Space and Earth Science to the world

There are currently 75 nations with IHY Organizing Committees. There are activities and representation in nearly all 192 United Nations Member States. IHY will run for two years, from 2007–2009. To view photos, presentations, and opening statements made by the speakers at the opening ceremony visit: http://ihy2007.org/newsroom/opening_ceremony.shtml. ■



Photo credit: Pat Izzo

Caption: IHY 2007 Opening Ceremony.

Gamma-Ray Burst Challenges Theory

Continued From Page 8

“People have thought for a long time that GRBs are black holes being born, but scientists are now thinking of other possibilities,” says Swift Principal Investigator Neil Gehrels of NASA’s Goddard Space Flight Center, a coauthor on both studies.

Another surprising result from GRB 060729 is that the x-ray afterglow displayed no sharp decrease in brightness over the 125-day period that it was detected by the XRT. Using widely accepted theory, Grupe and his colleagues conclude that the angle of the GRB’s jet must have been at least 28 degrees wide. In contrast, most GRB jets are thought to have very narrow opening angles of only about 5 degrees. “The much wider opening angle seen in GRB 060729 suggests a much larger energy release than we typically see in GRBs, says Grupe. ■

Proposed Mission Will Return Sample from Near-Earth Object

Continued From Page 10

RQ36 is roughly 580 meters in diameter, or about two-fifths of a mile. It orbits between about 83 million and 126 million miles from the Sun, swinging within about 280,000 miles of Earth orbit, or roughly 40,000 miles more distant than the Moon.

The International Astronomical Union’s Minor Planet Center has officially classified RQ36 as a “potentially hazardous asteroid.”

“It doesn’t present any near-term hazard, but the small Yarkovsky push over hundreds of orbits may eventually be enough to cause an ‘oops,’” said Nuth.

The OSIRIS proposal was among approximately two dozen submitted in response to NASA’s Discovery Program 2006 Announcement of Opportunity in April. NASA also selected two other proposed new *Discovery*-class missions, and three more *Discovery*-class proposals that would make use of existing NASA spacecraft, for concept development funding. NASA may select one or more investigations to continue into a development effort after detailed review of the concept studies. Decisions about which mission concepts will proceed to development are expected in late 2007. ■

NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES)

Supporting research in science and technology is an important part of NASA’s overall mission. NASA solicits this research through the release of various research announcements in a wide range of science and technology disciplines. NASA uses a peer-review process to evaluate and select research proposals submitted in response to these research announcements. Researchers can help NASA achieve national research objectives by submitting research proposals and conducting awarded research. This site facilitates the search for NASA research opportunities.

For more information, please visit <https://nspires.nasaprs.com>

Solicitations:

Aerospace Education Service Project (AESP)

Released: 2007-01-22

Proposal Due: 2007-03-30

Ground-Based Studies in Space Radiation

Released: 2007-01-05

Proposal Due: 2007-02-01

NASA Aeronautics Research Mission Directorate (ARMD)

Research Opportunities in Aeronautics (ROA) NRA

Released: 2006-05-24

Proposal Due: See Announcement

NASA Earth and Space Science Fellowship/07

Released: 2006-11-01

Proposal Due: See Announcement

Research Opportunities in Space and Earth Sciences - ROSES 2006

Released: 2006-01-23

Proposal Due: See Announcement ■

Pennant Challenge Ignites Stage One of STS-118 Endeavors

By Amy Pruett

When STS-118 soars into outer space in late June, Mission Specialist Barbara Morgan will become NASA's first Educator Astronaut to orbit the Earth. This accomplishment is expected to ignite a new inspiration within students around the world.

In the months leading up to STS-118's launch, exciting, educational activities such as nationwide contests and local events are projected to generate enthusiasm for the mission. These activities are expected to create interest and excitement in the STS-118 mission, while increasing student understanding of the requirements of flight into space. STS-118 is also expected to increase student knowledge of NASA program science and increase their perception of the importance of space exploration.

The NASA Space Pennant Design Challenge, which begins March 15 and ends April 12, will kick off the STS-118 educational activities. Children between the ages of 6–12 years old will be challenged to design pennants that celebrate either the STS-118 Shuttle Mission themes or the NASA Vision for Space Exploration using templates that may be found at: <http://www.KOLExpeditions.com>. Students are also encouraged to research their theme while developing a concept for their design. All pennants must be accompanied by a description of 100 words or less.

Following April 12, the pennants and descriptions will be judged in three age categories (ages 6–8, 9–10, and 11–12) and the winners in each category will be awarded prizes. The Grand Prize winner will have his or her pennant flown during the mission and receive a trip, along with one parent/guardian, to view STS-118's launch. Six finalists, two from each age group, will have their pennant design incorporated into a game on the NASA Web site, receive an autographed picture of the STS-118 Shuttle crew, and participate in a NASA Space Day at a local school or site with an astronaut and a "Mad Science" rocket launch. Thirty semifinalists, 10 from each age group, will receive a packet of "space-flown" basil seeds and an assortment of NASA science resources. All participants will receive a Certificate of Participation.

Students are to submit their pennant and description online or by mail to KOL at <http://www.KOLExpeditions.com>. Students are also requested to e-mail a copy of their pennant and description to Brittany Hamolia, Educator Resource Center Manager, at bhamolia@pop100.gsfc.nasa.gov. The GSFC Visitor Center will display as many pennants and descriptions as possible and several will be published in the *Goddard View*.

The launch of STS-118 is currently scheduled for no earlier than June 28, 2007. During the mission, the crew will continue to assemble the *International Space Station*. They will deliver the Starboard 5 Truss Segment and the External Stowage Platform 3 to the ISS. Barbara Morgan will be operating the robotic arm on both the Shuttle and ISS in her role as Mission Specialist.

An Educator Astronaut is a fully qualified astronaut who brings expertise in K-12 education. With their education background, Educator Astronauts help lead NASA in the development of new ways to connect space exploration with the classroom, and to inspire the next generation of explorers, while ensuring a successful mission.

For additional information on the NASA Space Pennant Design Challenge, visit: <http://www.KOLExpeditions.com>

For information on future educational activities related to STS-118, join the NASA Express mailing list on:

<http://www.nasa.gov/audience/foreducators/topnav/maillinglist/index.html>

For additional information on STS-118, visit:

http://www.nasa.gov/audience/foreducators/STS-118_index.html. ■



Photo credit: Pat Izzo

Caption: Public Affairs Office Education staff and Education Council Implementation Team members receive STS-118 Education Resource Kits during a "Train the Trainer" workshop on March 5. The kit will be used by informal and formal educators to assist students in the completion of the upcoming STS-118 Engineering Design Challenge and to further understand the mission and its significance. Mission Specialist and Educator Astronaut Barbara Morgan will be making the inaugural flight for an educator astronaut.

In Memoriam: Andre Harrison

By Alana Little

On March 12, 2007 Eurest Dining services and the Goddard Space Flight Center lost a dear friend and co-worker when Andre Harrison, grille cook in the Building 21 Cafeteria passed away due to a massive heart attack.

“Andre was a real character,” said Eurest co-worker Reecie. “And he could really make a steak sandwich, too.” “This is not goodbye,” she says. “I will see you in those clear blue skies.”

General Manager of Eurest Dining Services, John Battersby thought highly of Harrison saying he was excellent at his job as grille cook and “always the first person to offer help to new employees.”

Harrison, a graduate of Cardozo Senior High School in Washington, D.C., worked at Goddard for six years but Battersby actually met Harrison three years before when they both worked for the Defense Intelligence Agency. “We were all numb at hearing of the loss of such a great guy,” said Battersby.

Harrison was loved by many and is survived by a son, Terrell (18), and a daughter, Andrea (16), as well as his mother, Eva Mae Harrison, of Washington, D.C., four sisters, and several nieces and nephews. Harrison will be met in heaven with open arms by his deceased twin brother and a deceased sister. Harrison was 41-years old.

Services for Andre Harrison will be held on Saturday March 24, 2007 at Mt. Rona Baptist Church at 3431 13th Street NW Washington, D.C, 20010. The viewing is from 10:00–11:00 a.m. and the funeral will be held from 11:00 a.m. to Noon. ■

All is Well

by Henry Scott-Holland.

Death is nothing at all.

I have only slipped away into the next room.

I am I, and you are you.

Whatever we were to each other, that we still are.

Call me by my old familiar name,
speak to me in the easy way which you always used.

Put no difference in your tone,

wear no forced air of solemnity or sorrow.

Laugh as we always laughed at the little jokes
we enjoyed together.

Play, smile, think of me and if you want to, pray for me.

Let my name be ever the household word
that it always was,

let it be spoken without effect,
without the trace of a shadow on it.

Life means all that it ever meant.

It is the same as it ever was;
there is unbroken continuity.

Why should I be out of mind because I am out of sight?

I am waiting for you,
for an interval, somewhere very near,
just around the corner.

All is well.