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Agency Calendar Initiative

By Koby South

The NASA Shared Services Center (NSSC) has completed a new Web-based Agency calendar, which tracks significant events, including upcoming launches; significant mission events; Agency governance council meetings (e.g., Strategic Management Council, Program Management Council, Operations Management Council, and Baseline Performance Review); NASA Advisory Council meetings; Performance Review Board meetings; Executive Review Board meetings; NSSC Board of Directors' meetings; Mission Directorate or program review meetings impacting multiple centers (e.g., Orion or Constellation); Acquisition Strategy Meetings, and Procurement Strategy Meetings for Agency-wide contracts; Planning, Programming, Budgeting, and Execution events; Center award ceremonies; functional and external reviews; surveys, audits, and assessments; Continuity of Operations Plan exercises; and Congressional Hearings.

Features include:

- a standard Microsoft Outlook calendar look and feel, with similar functionality;
- the ability for PC users to download scheduled events to their Outlook calendar where events can be displayed in daily, list, and monthly views (Mac is supported through Entourage downloads); and
- filtering by office, event, or Center category.

The calendar is accessible to all NASA employees on the NASA network domain, but not accessible from the public domain, and can be viewed at: http://aci.nssc.nasa.gov.

For questions about the new Agency Calendar, please contact the NSSC Customer Contact Center at: nssc-contactcenter@nasa.gov. ■

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Cover caption: Hundreds gather to learn more about Goddard's mission at Goddard Day in Annapolis, Md.

Photo credit: Pat Izzo.

GoddardView Info

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Managing Editor: Trusilla Steele
Editor: John Putman

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 john.m.putman@nasa.gov. Ideas for new stories are welcome but will be published as space allows. All submissions are subject to editing.

Sunday Experiment Draws More Than 1,000 Visitors

By John Putman

On February 15, over 1,000 visitors converged on Goddard's Visitor Center for last month's Sunday Experiment. February's event brought a new focus to the Moon through several eye-opening, hands-on activities designed to create a better understanding of our solar system.

"Field Trip to the Moon" is a virtual journey in our ExploraDome, a portable observatory, using NASA engineering models and scientific data. Like NASA astronauts, participants came face-to-face with the challenges and excitement of traveling through space to land on the Moon. Along the way, they discovered differences between Earth and the Moon, and what makes our planet hospitable.

Children built edible models of NASA's *Lunar Reconnaissance Orbiter* out of candy while learning about the instruments that the spacecraft will carry and how these instruments will help us better understand the Moon, and plan for a future lunar outpost.

Photo credit: Sean Brooks

Caption: Construction of edible Lunar Reconnaissance Orbiter *models.*

Adults and children also enjoyed "Mission Moon!" Using Science on a Sphere, the audience worked in teams and used data collected from previous lunar missions to assess environmental conditions, resources, and scientific relevance of different locations on the Moon. Visitors also got to see the new Science on a Sphere movie "Return to the Moon."

Photo credit: Sean Brooks

Caption: The Sunday Experiment brought over 1,000 visitors to Goddard's Visitor Center.

Photo credit: Debora McCallum

Caption: Rani Gran talks to kids about the Sun.

March's Sunday Experiment featured our closest star, the Sun. Students discovered the Sun during a series of illuminating activities. Unique beads sensitive to ultraviolet light revealed the power of the Sun's rays. A glimpse of the Sun using a solar telescope offered a glimpse of its tempestuous nature. Stormy solar activity was displayed during a Sun-spotter activity. The Visitor Center's Science on a Sphere exhibit presented a new perspective of our vital star, and students crafted their own versions of the Sun using a variety of materials.

Photo credit: Debora McCallum

Caption: Visitors work on their own versions of the Sun.

The Sunday Experiment is held the third Sunday of each month from September through May and features activities showcasing Goddard's world-renowned science and engineering research and technological developments. Families leave inspired by the hands-on activities, wowed by the scientists and engineers, and excited about Goddard's revolutionary research and technology. In addition to celebrating all things science, technology, engineering, and mathematics, the Sunday Experiment celebrates major science missions that are managed by Goddard.

For more information on the Sunday Experiment, visit Goddard's Visitor Center's Web site:
http://www.nasa.gov/centers/goddard/visitor/events/index.html. ■

NASA's *Fermi Space Telescope* Sees Most Extreme Gamma-ray Blast Yet

By Francis Reddy

The first gamma-ray burst to be seen in high-resolution from NASA's *Fermi Gamma-ray Space Telescope* is one for the record books. The blast had the greatest total energy, the fastest motions, and the highest-energy initial emissions ever seen.

"We were waiting for this one," said Peter Michelson, the Principal Investigator on *Fermi*'s Large Area Telescope at Stanford University. "Burst emissions at these energies are still poorly understood, and *Fermi* is giving us the tools to understand them."

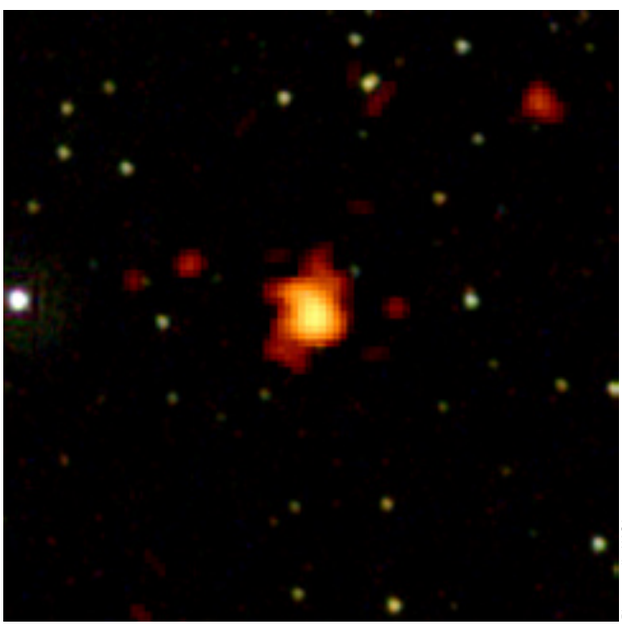


Photo credit: NASA

Caption: GRB 080916C's afterglow appears orange and yellow in this view that merges images from Swift*'s ultraviolet/optical and X-ray telescopes.*

Gamma-ray bursts are the universe's most luminous explosions. Astronomers believe most occur when exotic massive stars run out of nuclear fuel. As a star's core collapses into a black hole, jets of material—powered by processes not yet fully understood—blast outward at nearly the speed of light. The jets bore all the way through the collapsing star and continue into space, where they interact with gas previously shed by the star to generate bright afterglows that fade with time.

This explosion, designated GRB 080916C, occurred at 7:13 p.m. EDT on Sept. 15, in the constellation Carina. *Fermi*'s other instrument, the Gamma-ray Burst Monitor, simultaneously recorded the event. Together, the two instruments provide a view of the blast's initial gamma-ray emission from energies from 3,000 to more than 5 billion times that of visible light.

Nearly 32 hours after the blast, Jochen Greiner of the Max Planck Institute for Extraterrestrial Physics in Garching, Germany, led a group that searched for the explosion's fading afterglow. The team simultaneously captured the field in seven wavelengths using the gamma-ray burst optical/near-infrared detector (GROND) on the 2.2-meter telescope at the European Southern Observatory in La Silla, Chile. In certain colors, the brightness of a distant

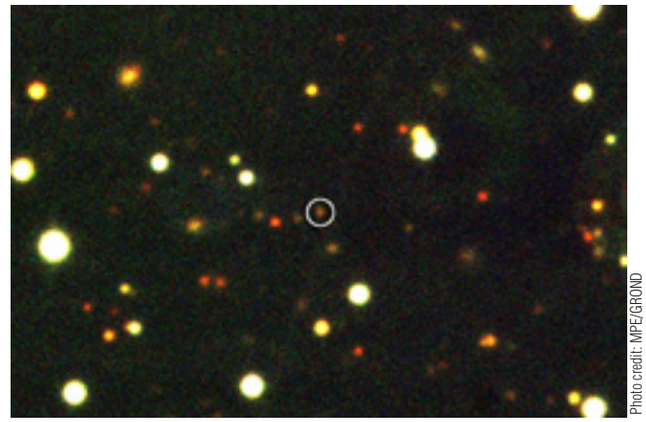


Photo credit: MPE/GROND

Caption: On Sept. 17, 31.7 hours after GRB 080916C exploded, the GROND on the 2.2-meter Max Planck Telescope at the European Southern Observatory, La Silla, Chile, began acquiring images of the blast's fading afterglow (circled).

object shows a characteristic drop-off caused by intervening gas clouds. The farther away the object is, the redder the wavelength where this fade-out occurs. This gives astronomers a quick estimate of the object's distance. The team's follow-up observations established that the explosion took place 12.2 billion light-years away.

"Already, this was an exciting burst," said Julie McEnery, a *Fermi* Deputy Project Scientist at NASA's Goddard Space Flight Center in Greenbelt, Md. "But with the GROND team's distance, it went from exciting to extraordinary."

With the distance in hand, *Fermi* team members showed that the blast exceeded the power of approximately 9,000 ordinary supernovas, if the energy was emitted equally in all directions. This is a standard way for astronomers to compare events, even though gamma-ray bursts emit most of their energy in tight jets.

Coupled with the *Fermi* measurements, the distance also helps astronomers determine the slowest speeds possible for material emitting the prompt gamma rays. Within the jet of this burst, gas bullets must have moved at 99.9999 percent the speed of light. This burst's tremendous power and speed make it the most extreme recorded to date.

One curious aspect of the burst is a five-second delay separating the highest-energy emissions from the lowest. Such a time lag has been seen clearly in only one earlier burst. "It may mean that the highest-energy emissions are coming from different parts of the jet or created through a different mechanism," Michelson said.

The team's results appear in the online edition of the journal *Science*.

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

Teaming Up for Safety—2009 Safety Awareness Campaign

By Trusilla Steele

The 2009 Safety Awareness Campaign (SAC) will occur April 6–10 for Greenbelt employees. This annual event is designed to raise safety awareness and highlight best practices and lessons learned. This year's theme, "Team Up for Safety," remind us that everyone is responsible and accountable for being aware of safe practices and principles. The SAC also provides an opportunity for employees to learn strategies to incorporate safety principles while performing daily tasks at work and at home. Wallops employees will participate in SAC activities April 21–22, and IV&V will have their SAC May 18–19.

Center Director Rob Strain has maintained a strong focus on safety since coming to Goddard last year. He knows that safety is fundamental to mission success and sees the SAC as a way to give every employee useful and practical information that will make everyone's work and home life safer and more secure.

Melonie Scofield, Acting Associate Division Chief for Safety and Environmental, leads a team comprised of representatives from each Directorate. The team has developed a schedule of events designed to cover all aspects of safety. They have incorporated feedback provided by employees during the 2008 SAC and have included activities and workshops that are relevant to Goddard's mission.

On Monday, April 6, at 10:30 a.m., Mike Ryschkewitsch, NASA Chief Engineer, will open the 2009 SAC with a discussion on the lessons learned from the Genesis Mishap in the Building 8 Auditorium. Also in the same location, at 1:00 p.m., a special presentation from Dr. Nigel Packham from NASA's Johnson Space Center, will address lessons learned from his team's investigation of the STS-107 *Columbia* mishap. Mike Ryschkewitsch states the presentation has a powerful safety message and will be given at all NASA centers.

During last year's SAC, many employees and supervisors participated in a safety survey and focus groups. The survey and focus groups were part of a NASA Headquarters safety pilot. Langley Research Center also participated in the pilot. This year, the results of the pilot will be presented and several focus groups have been scheduled to discuss the top areas of concern noted by employees during the pilot: Communication, Cross Directorate Communication, and Accountability. Employees are encouraged to participate in the focus groups. Contact Janet Manuel at x6-6422 to sign up.

The 2009 SAC will include a wide range of activities, including a panel discussion on how to raise safety concerns. The panel will be comprised of senior Goddard managers.

In addition, employees can increase their safety knowledge and awareness by attending workshops on such topics as "Cyber Safety," "GSFC Mishaps and Close Calls," "Reemergence of Diseases in the U.S.," and "International Travel Safety." Employees will also have the opportunity to train in first-aid, lab management, respiratory protection, asbestos awareness, and more.

Once again, the SAC will present office safety and ergonomics. Driver safety will be presented and will include examples of issues and rules pertaining to handicapped employees, cyclists, and pedestrians on the Center.

The Safety and Environmental Division will also conduct a chemical cleanout during this week. Organizations will have the opportunity to properly and conveniently dispose of excess or expired chemicals in their building. Specific locations and times will be sent to the Building Facility Operations Managers (FOMs) for distribution prior to this activity.

As part of a continuing effort to ensure safety awareness and to implement policies and standards that ensure safe operations and mission success, Goddard senior management and the Goddard Safety Council are encouraging all employees to attend at least two activities during the SAC. All participants will be asked to provided feedback and suggestions which can be used in planning future SACs.

Photo credit: Pat Izzo

Caption: The Forklift Rodeo from the 2008 Safety Awareness Campaign.

Your Directorate SAC representative will disseminate information, enabling you to "Team up for Safety."

For further details on the Safety Awareness Campaign activities, visit: http://safety1st.gsfc.nasa.gov/safetyaware.cfm. ■

Goddard Day at the Maryland Capitol—Celebrating 50 Years of Space Exploration

By Dewayne Washington

It was an out-of-this-world road show as Goddard community members assembled in the Miller Senate Building of the Maryland State Capitol to engage elected officials, staff members, and visitors while acknowledging and celebrating Goddard's 50 years of space exploration. Interactive exhibits and presentations were the backdrops for exploring the unique world of research and discovery by world-renowned scientists and engineers that has become known as Goddard Day.

"This is the second year the Goddard Community Relations team has coordinated this day as a way to increase Goddard's profile within the state of Maryland," says Debra Hollebeke, Government and Community Relations Manager for Goddard. "This is a great opportunity to demonstrate Goddard's impact on the state, National, and global economy."

The day began with Goddard Center Director Rob Strain on the floor of the Maryland State Senate and House of Delegates accepting resolutions recognizing Goddard's anniversary. The resolutions read in part, "…in recognition of 50 years of excellence in scientific innovation, exploration, and discovery." Later, Strain was able to spend a few minutes in the office of Maryland Governor Martin O'Malley. "He definitely knows who we are and is excited about the work we accomplish," Strain said. "He also talked about making a visit to Goddard to see some of the exciting work we do."

Throughout the day, visitors were able to engage Goddard volunteers up close and see space-related materials within the transformed Presidential Conference Center in the Miller Senate Building. Displays showcasing Goddard missions included the *Solar Dynamics Observatory* (SDO), *Solar Terrestrial Relations Observatory* (STEREO), and *Messenger*. Guests learned that NASA's return trip to the Moon will begin with the *Lunar Reconnaissance Orbiter* (LRO), which was built in their own backyard. Scale models of the *Hubble* and *James Webb Space Telescopes* were also on display.

The goal of the Goddard volunteers was to create an environment showcasing "Explorers and Discovers," the theme for the day. Exhibits and presentations also reflected the many outreach efforts of how Goddard "Teaches and Inspires," "Keeps Eyes on Earth," and "Innovates and Sustains."

Engaging the public about Goddard's education pipeline efforts were education specialists, staff from Goddard's Visitor Center, the Office of Human Capital Management, and mission outreach members. Representatives from Goddard's Wallops Flight Facility and the National Oceanographic and Atmospheric Administration (NOAA) were also present to talk about their research and exploration work.

Dr. James Garvin, Goddard's Sciences and Exploration Directorate Chief Scientist, spoke enthusiastically about the research behind exploring Earth, the Moon, and Mars, and Goddard's largest project currently under construction, the *James Webb Space Telescope*. Aerospace engineering majors from the U.S. Naval Academy asked lots of engaging questions providing a lively audience discussion.

"It was a great success for me," said Trena Ferrell, a Goddard Education Specialist. "I have been receiving calls and e-mails everyday from Marylanders wanting to know more about the education programs we have here."

Photo credit: Pat Izzo

Caption: Visitors crowd the James Webb Space Telescope *exhibit.*

More than 600 visitors walked through the numerous exhibits gaining a better understanding about the scientific advancements happening in their own backyard. It was a unique opportunity for Goddard community members to educate legislators and the public about the important role Goddard has in supporting NASA's space exploration efforts.

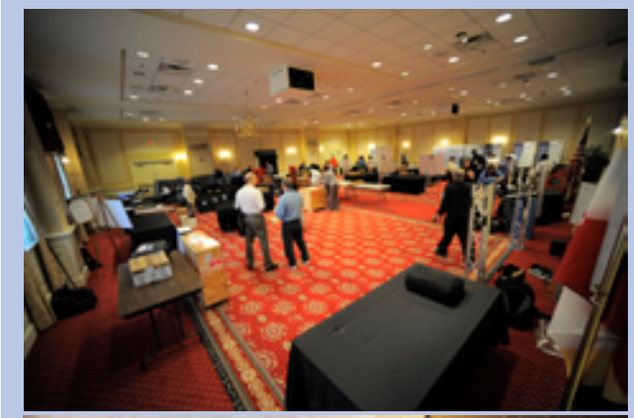
"From the planning, to the logistics, to the warm smiles of the Goddard participants, this is another great example of how well the Goddard community can come together," says Hollebeke. "Marylanders have a greater understanding and, we hope, appreciation about who we are and what we do at Goddard."

At the end of the day, many of Maryland's most influential law and policy stewards had gained valuable insight into the Nation's largest organization of combined scientists and engineers dedicated to learning and sharing the knowledge of Earth, Sun, the solar system, and the universe.

"I want to extend my sincere thanks to all who participated in making the event at the Maryland State Capital a success," Strain said. "Planning and executing an event of this magnitude is no easy feat. Your hard work, enthusiasm, and dedication made the day a big success." ■

Goddard Day at the Maryland Capitol Photo Gallery

Photos by Pat Izzo



NASA Debuts Unique Movie on a Sphere About Frozen Earth

By Stephen Cole and Sarah Dewitt

NASA has created a unique "spherical" movie about Earth's changing ice and snow cover as captured by NASA spacecraft. "Frozen," a 12-minute, narrated film, premieres at science centers and museums March 27.

NASA's Goddard Space Flight Center produced the film for the "Science on a Sphere" projection system, a fully spherical video technology developed by the National Oceanic and Atmospheric Administration. The six-foot spheres are installed in more than 30 locations around the world.

Photo Credit: Goddard TV/Scientific Visualization Studio

Caption: The title shot of NASA's new movie, "Frozen."

Ice covers about 20 percent of Earth's surface and plays a major role in the world's climate. NASA operates a sophisticated fleet of spacecraft that make global measurements of ice and snow in remote and treacherous locations not easily accessible to scientists on the ground. Data from these NASA satellites play a critical role in climate change research.

"Frozen" probes all parts of Earth where water exists in solid form as snow or ice, known as the cryosphere. The movie takes viewers from the everyday experience of sensing heat and cold to a discussion of how satellites "see" heat and cold with advanced sensors. It then projects dramatic displays of satellite data of Earth, including changing Arctic sea ice and global snow cover, onto the sphere. Images generated by NASA's *Aqua* satellite and the *Landsat* series are featured in "Frozen."

"With 'Frozen,' we're not only breaking new ground in terms of spherical film-making, but also transforming an otherwise technical subject into a powerful and poetic drama about the state of Earth," said Goddard's Michael Starobin, one of the film's producers.

Science on a Sphere uses a 6-foot diameter carbon fiber sphere that hangs in a dark theater surrounded by four projectors. A computer system drives video content for the projectors to create a seamless image around the sphere.

"Science on a Sphere is a powerful and exciting new medium for telling all sorts of stories," said Starobin, who also produced and directed "Footprints," NASA's first movie for the system in 2006. "Footprints" explores the origin of hurricanes, the origin of gamma-ray bursts, and the human imperative to ask hard questions. NASA installed its first sphere at Goddard in 2006.

NOAA originally conceived Science on a Sphere to help illustrate Earth science principles by showing planet-wide data. Museums and universities have created hundreds of data visualizations for the platform since it first debuted in NOAA facilities, providing educational opportunities for millions of visitors. Very few fully produced, narrated movies have been developed for the system.

"Frozen" marks the next step in the evolution of spherical filmmaking," Starobin said. "It moves the technology of the craft to new levels and, more importantly, tackles a single subject and uses the unique shape of the screen to discuss that subject in new ways. For example, where a flat screen only provides a sense of the remote, obscure scale of polar regions, a spherical presentation shows just how vast these places are. It highlights global processes in an orientation that matches reality."

For more information about "Frozen," including a list of locations showing the film, visit: http://www.nasa.gov/frozen.

For information about the first Science on a Sphere movie, "Footprints," visit: http://www.nasa.gov/centers/goddard/visitor/exhibits/footprints.html. ■

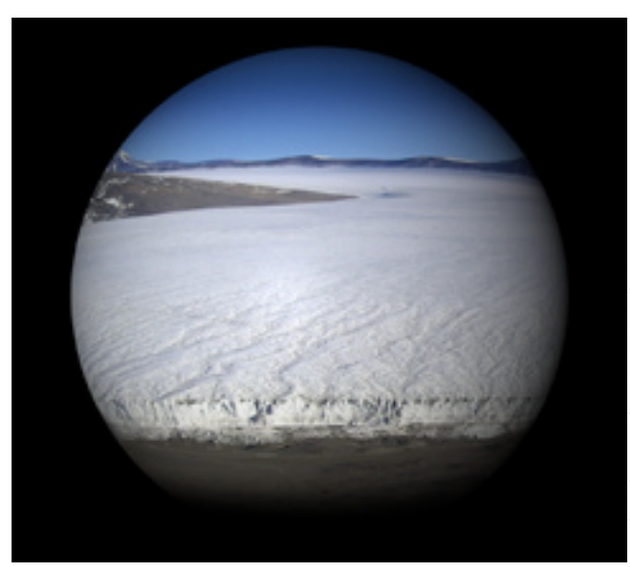


Photo Credit: Goddard TV/Scientific Visualization Studio

Caption: A still shot from the movie "Frozen" showing a glacier.

Planetarium Show on Exploration of the Outer Solar System Opens in Chicago

By Rani Gran

A new NASA mission that explores the outer edges of our solar system is featured at the Adler Planetarium and Science Museum in Chicago. NASA launched the *Interstellar Boundary Explorer* (IBEX) on October 19, 2008. This is the first NASA spacecraft to image and map the dynamic interactions taking place where the hot solar wind slams into the cold expanse of space.

"IBEX: Search for the Edge of the Solar System" details the spacecraft's exploration of the outer solar system using energetic neutral atom (ENA) imaging to create the first global maps of interactions between the million mile-per-hour solar wind and the low-density material between the stars, known as the interstellar medium. Using these data, researchers will examine the structures and dynamics of the outer heliosphere and address a serious challenge facing human exploration by studying the region that shields Earth from the majority of galactic cosmic ray radiation.

The planetarium show also moves behind the scenes of the mission to spotlight a few of the countless tasks involved in developing a NASA mission and the hundreds of national and international collaborators and contributors that make them happen. IBEX's unique and relatively inexpensive launch method—dropping from an aircraft and launching aboard a Pegasus rocket, and then using its own solid rocket motor and hydrazine propulsion system to move into an orbit nearly out to the Moon—is also shown.

"Four months since launch and we're getting fantastic science results," says IBEX Principal Investigator Dr. David McComas, Assistant Vice President of the Space Science and Engineering Division at Southwest Research Institute (SwRI). "The data so far are really fascinating with clear spatial variations in both the fluxes and energies of the neutral atoms traveling in from the edge of the solar system. We'll have much to tell later this summer following the completion of the first all-sky map."

The launch of the IBEX planetarium show coincides with the International Year of Astronomy, an International Astronomical Union and United Nations effort marking the 400th anniversary of the telescope and the advances in astronomy and related sciences.

IBEX is NASA's latest Small Explorers spacecraft. The mission was developed by Southwest Research Institute with a national and international team of partners. The Goddard Space Flight Center manages the Explorers Program for NASA's Science Mission Directorate. The Adler Planetarium and Science Museum leads the mission's education and public outreach efforts.

For information about the Adler Planetarium and Science Museum, show times, and ticket information, visit: http://www.adlerplanetarium.org. For more information on IBEX, visit: http://www.nasa.gov/ibex. ■

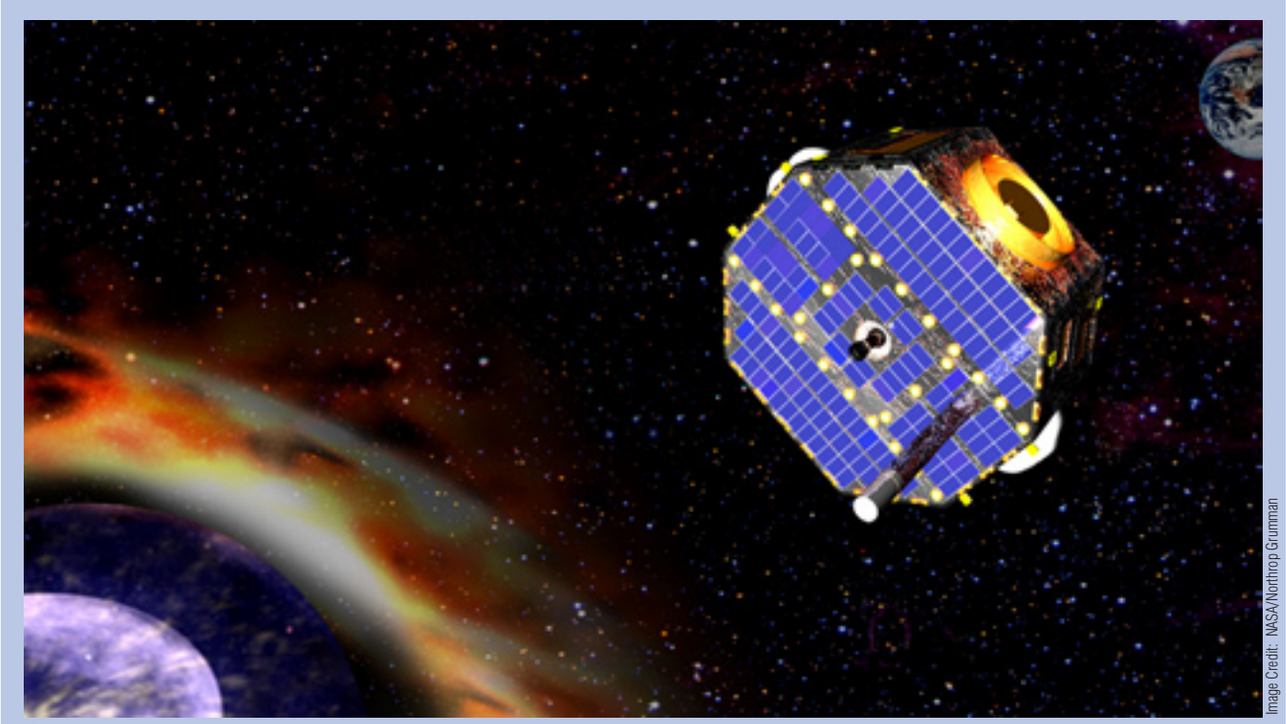


Image Credit: NASA/Northrop Grumman

Caption: Artist's impression of the Interstellar Boundary Explorer *(IBEX) exploring the edge of our solar system.*

Three Goddard Scientists Receive Special Honors

By Rob Gutro and Francis Reddy

Goddard is the home of many award winning scientists, and this year is no different. This month, climatologist Claire Parkinson, astrophysicist Marc Kuchner, and astrophysicist Neil Gehrels received recognition of their achievements.

Claire Parkinson has been elected to the National Academy of Engineering for leadership in understanding sea-ice changes through satellite measurements and for leading NASA's Earth-observing *Aqua* satellite mission. Claire is a senior scientist and *Aqua* Project Scientist in the Cryospheric Sciences Branch at Goddard. She's worked at Goddard since July 1978, with a research emphasis on using satellite data to examine polar sea-ice and climate change. She also developed a computer model of sea ice, and has done fieldwork in both the Arctic and Antarctic, including at the North Pole itself. She is the lead author of an atlas of Arctic sea ice from satellite data, and a co-author of two other sea-ice atlases, plus a co-editor of two books on climate change.

Photo credit: Pat Izzo

Caption: Claire Parkinson.

"Election to the National Academies is among the highest professional distinctions and a great recognition of Claire's stature in the community and research achievements," said Nicholas White, Director, NASA Sciences and Exploration Directorate at Goddard.

Outside of her Goddard work, she has written a book on the history of science and has twice won bronze medals in swimming at the U.S. National Senior Games/Senior Olympics. She is a member of the Council of the American Association for the Advancement of Science (AAAS) and a Fellow of both the American Meteorological Society and Phi Beta Kappa.

Marc Kuchner recently received the 2009 Society of Photo-Optical Instrumentation Engineers (SPIE) Early Career Achievement Award. SPIE is an international society advancing light-based research. This award is in recognition of Marc's many outstanding achievements, which have greatly facilitated the detection and characterization of extra-solar planets. "Marc's invention and refinement of new telescope coronagraph masks provided astronomers with innovative tools needed to detect planets directly around bright stars," White said.

Photo credit: Chris Gunn

Caption: Marc Kuchner.

Marc is an astrophysicist in the Laboratory for Exoplanets and Stellar Astrophysics at Goddard and his research interests include direct detection of extrasolar planets; planet formation; planet-disk interactions; coronagraphy; interferometry; debris disks and protoplanetary disks; and the solar system. One mission concept he's working on is the *Terrestrial Planet Finder*, a large space telescope designed to find habitable Earth-like planets orbiting nearby stars. Marc's coronagraph designs are also slated for use on the *James Webb Space Telescope*.

Outside of NASA, Marc is an accomplished songwriter and musician. Kuchner writes country and pop songs. Two of his songs received airplay in 2008, and his song "Start Now" was chosen as the best demo of 2008 by Music Connection Magazine. Kuchner's songs appear on the albums of rising country stars Taryn Cross, Chelesea Music, Brynn Marie, and many others.

SPIE also awarded their 2009 SPIE George W. Goddard award to a Goddard astrophysicist: Neil Gehrels. "This award is in recognition of Neil's pioneering contributions in opening the gamma-ray spectral window as its own astronomical discipline through his leadership of the *Compton Gamma Ray Observatory* and the *Swift* mission," White said.

Neil is the Chief of the Astroparticle Physics Laboratory at Goddard. Gehrels serves as Principal Investigator of NASA's *Swift* mission, and Deputy Project Scientist of NASA's *Fermi Gamma-ray Space Telescope* satellite. Since its launch on November 20, 2004, *Swift* has greatly advanced astronomers' understanding of stupendously powerful stellar explosions known as gamma-ray bursts. *Fermi* launched in June 2008, and has already discovered a dozen new pulsars. During the 1990s, Gehrels served as the Project Scientist for the *Compton Observatory*, which was the second of NASA's four Great Observatories and pioneered observations of the gamma-ray sky. Gehrels was recently awarded the Henry Draper Medal by the National Academy of Sciences.

Photo credit: Debora McCallum

Caption: Neil Gehrels.

Neil's wife, Ellen Williams, is a professor of physics in the surface physics group at the University of Maryland. He has two children, Tommy and Emily. His other interests include mountaineering and music. ■

Goddard Scientist Elected as a 2009 Fellow of the Society of Photo-Optical Instrumentation Engineers

By Lynn Chandler

Photo credit: Debora McCallum

Caption: Lee Feinberg.

Lee Feinberg has been elected as a fellow of the Society of Photo-Optical Instrumentation Engineers (SPIE). Feinberg is the Optical Telescope Element Manager for the *James Webb Space Telescope* and is being recognized for his specific achievements in large space optics and optical technology. He will receive his award in August at the SPIE Optics and Photonics meeting in San Diego, Calif.

"This is a tremendous honor for NASA and for Lee because of Lee's wide range of technical achievements and leadership in some of the most challenging and important developments of our time," said Dr. John Mather, *Webb* telescope Senior Project Scientist. The *Webb* telescope, the planned successor to the *Hubble Space Telescope*, will depend on a combination of new optical technologies. These include a segmented beryllium reflector to collect starlight, new methods to adjust the telescope after launch, and operation at extremely low temperatures. "Lee is a master of all these technologies, and thousands of astronomers are depending on him for their future discoveries," Mather said.

Feinberg has been the Optical Telescope Element Manager for the *Webb* telescope for the past seven years and is also a Senior Staff Engineer in the Instrument Systems Technology Division.

On the *Webb* telescope, he has overseen the development of the three critical telescope technologies: lightweight mirrors, lightweight cryogenic structures, and wavefront sensing and control. He also co-chaired the Mirror Review Board that chose beryllium as the material for the primary mirror, has been a significant contributor to the telescope flight architecture and test architecture, and is the NASA lead for the overall development of the telescope.

Feinberg has served as the Assistant Chief for Technology in the Instrument Systems Technology Division and worked on the optical correction and upgrade instruments for the *Hubble Space Telescope*.

Feinberg received an M.S. in applied physics from the Johns Hopkins University and graduated with a B.S. in optics from the University of Rochester, New York. Lee is a frequent SPIE session chair and the Institute of Electrical and Electronics Engineers aerospace telescope and optics sessions. He is the recipient of the Moe Schneebaum Memorial Award, the highest engineering honor given to a single Goddard engineer or scientist each year.

When he is not building telescopes, he is a pianist, keyboardist, composer of jazz and rock music, and a member of the band Outta Scope that plays in the Washington, D.C. area. He lives in Silver Spring with his wife, Shari, and their two children, Evan and Amanda.

SPIE fellows are members of distinction who have made significant scientific and technical contributions in the multidisciplinary fields of optics, photonics, and imaging. They are honored for their technical achievement, for their service to the general optics community, and to SPIE in particular.

The *James Webb Space Telescope* is expected to launch in 2013. NASA's Goddard Space Flight Center is managing the overall development effort for the *Webb* telescope. The telescope, being built by Northrop Grumman, is a joint project of NASA and many U.S. partners, the European Space Agency and the Canadian Space Agency.

For more information about the *James Webb Space Telescope*, visit: http://www.jwst.nasa.gov.

For more information on SPIE, visit: http://SPIE.org. ■

In Memoriam: Mario Acuña

By Renee Dotson

Dr. Mario Acuña, a senior astrophysicist in the Planetary Magnetospheres Lab, passed away March 5, in the comfort of his home, surrounded by family and loved ones, after a lengthy battle against multiple myeloma.

Dr. Acuña was world-renowned for his work in magnetic fields and plasmas in the solar system, and was one of most prolific and accomplished scientists to ever work at Goddard.

He had worked as an instrument scientist, co-investigator, or principal investigator in many NASA missions such as *Pioneer 11*, *Voyager*, *Mariner*, *Giotto*, *Tether*, International Solar Polar Mission, and many others; and the principal investigator or lead scientist for the magnetometer investigations on the Near Earth Asteroid Rendezvous Mission, *Mars Global Surveyor*, *Lunar Prospector*, *Messenger*, and the *Solar Terrestrial Relations Observatory*.

He was elected to the National Academy of Sciences in 2007 and was honored by NASA with numerous prestigious awards including the John C. Lindsay Award, the Moe I. Schneebaum Memorial Award (the highest engineering award at Goddard), the Medal for Exceptional Scientific Achievement, the Distinguished Service Medal, and a Presidential Meritorious Rank Award.

Born March 21, 1940, in Córdoba, Argentina, Acuña became a naturalized U.S. citizen in April 1994. He earned a bachelor's degree from the Universidad Nacional de Córdoba in 1958, a master's degree from the Universidad Nacional de Tucumán in 1967, and a Ph.D. from The Catholic University of America in 1974.

Acuña joined Goddard in the early 1970s, first working as a research scientist in the Space Plasmas and Planetary Magnetospheres Branches, and then as a senior astrophysicist. He was a major pioneer in the field of planetary magnetism, and an original co-investigator on the *Messenger* mission from the time of the team's first proposal 13 years ago.

He leaves a devoted wife, Barbara; sons Jamie, Andrew, and Daniel; daughter Marta; and five grandchildren. His loss will be deeply felt by all who follow the progress of planetary science and space plasma physics.

In lieu of flowers, the family requests that contributions be made to the Mario H. Acuña Memorial Fund at The Catholic University of America or the Multiple Myeloma Research Foundation.

For more details, including a blog posted by his family that chronicles the struggle with his illness, visit: http://supermarioacuna.wordpress.com. ■

Photo credit: Chris Gunn

Caption: Mario Acuña