A Flight Projects Directorate Publication
A Newsletter Published for Code 400 Employees

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INSIDE THIS ISSUE:

GLAST, Renamed Fermi, Gets Down to Business

NASA's newest observatory, the Gamma-Ray Large Area Space Telescope (GLAST), has opened its eyes. It's catching pulsars old and new, gamma-ray bursts, flares from active galaxies billions of light-years away, and other denizens of the extreme universe, where nature harnesses energies far beyond anything possible on Earth. "The pace of new discoveries will be very exciting in the days and years ahead," predicts Jon Morse, director of NASA's Astrophysics Division.

Following the spacecraft's June 11 launch, scientists spent two months testing and calibrating its two instruments: the Large Area Telescope (LAT) and the Gamma-ray Burst Monitor (GBM).

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UPC-Orion "*carries*" on where the legacies of Hitchhiker and Apollo SIM Bay left off

(UPC-Orion Continued on page 10)

Message from the Director Of

Greetings:

Where did those 4 months go? What a whirlwind they were. The highlight of the period was the successful launch and on-orbit commissioning of the Interstellar Boundary Explorer or IBEX. IBEX was launched on a Pegasus from Kwajalein on Sunday, October 19. After some early problems with communications and the power system configuration, orbit raising and instrument checkout has proceeded flawlessly. Congratulations to Dr. Dave McComas, IBEX Principle Investigator, Greg Frazier, IBEX Mission Manager, and their teams.

As I'm sure everyone knows, just a few days before the launch of HST Servicing Mission 4 (SM4), the Science Instrument Command and Data Handling (SI-C&DH) unit on-orbit experienced a failure after 18.5 years of continuous operation. HST is, of course, a fully redundant spacecraft so a B-side SI-C&DH was available. Unfortunately, due to the design implementation of HST redundancy, switching to the B-side of this unit would leave the HST zero fault tolerant to another failure. That being the case, the decision was made to delay SM4 until the spare SI-C&DH could be tested, verified, and added to the manifest. That unit has now completed initial ambient characterization testing and is moving toward environmental test on a schedule that supports a May 12, 2009, SM4 launch readiness date. In the meantime, the HST operations team configured the HST data system for B-side operations and successfully implemented the transition on 10/24.

As of this writing, both the Lunar Reconnaissance Orbiter (LRO) and the Sample Analysis at Mars (SAM) instrument suite are in thermal vacuum testing and performing well. LRO is on schedule to support a late April 2009 launch readiness date and SAM is on schedule to be delivered to JPL for integration to the Mars Science Lab in January 2009. In addition, the NOAA N' spacecraft was recently delivered to VAFB for launch processing. This last in the series of NOAA spacecraft has had a rough development path but is performing well and is on track for a February 4, 2009, launch readiness date. Further, after a lot of blood, sweat and tears, the Express Logistics Carrier Project will make their first of 5 pallet deliveries to KSC on December 15 approximately 2 months ahead of schedule. These massive pallets will serve ISS on-orbit for spares storage and science investigation support.

Congratulations to the Mars Atmosphere and Volatile Evolution (MAVEN) Team, led by Principle Investigator, Dr. Bruce Jakosky, of the Laboratory for Atmospheric and Space Physics at the University of Colorado at Boulder. Dave Mitchell (430) of GSFC, is the Project Manager for this Mars robotic mission. The winning proposal becomes Goddard's first planetary scientific mission, and was selected by NASA HQ in competition with 19 other mission investigation proposals.

There have been some recent management changes in the Directorate that I wish to pass along. In August, Peg Luce accepted a detail assignment to NASA HQ as the Deputy Division Manager of the Earth Science Division. Bob Menrad accepted my request to take over for Peg as the Associate Director for Advanced Concepts and Formulation and Mike Weiss accepted my request to take over for Bob as the head of the Constellation Projects Office. Beth Keer, Code 300, has joined Code 400 as an Assistant Director. Please join me in wishing Peg, Bob, Mike, and Beth well in their new positions.

As the year draws to a close, I hope each of you takes some time to reflect on the past 12 months both personally and professionally. I find this to be an extremely fulfilling and worthwhile thing to do. Also, please take some time to rest and relax over the holidays. You all deserve it!

Happy Holidays,

George

PERSONALITY TINTYPE

David Carter

David serves as the NASA Satellite Laser Ranging (SLR) Networks Manager for the Ground Network Project, Code 453.

Born: Washington, D.C.

Education:

David graduated from Du-Val High School in Lanham, Maryland. He initially attended University of Maryland Eastern Shore and received his Bachelor of Science Degree in Mechanical Engineering from the University of Maryland, College Park. He completed his Master Degree in Engineering Management from George Washington University. David also received an Honorary Professor Diploma from the Universidad Nacional de San Agustin (UNSA) in Arequipa, Peru for his years of work with UNSA in support of the NASA SLR program.

Family: David has been married to his wife, LaVerne, for 17 years. They have three children: Jasmyne (14 yrs. old), Omari (12 yrs. old), and De-Lani (9 yrs. old).

Life at GSFC:

David began his career at GSFC as a summer intern with the Earth Science Directorate. He later converted to a CO-OP student where he worked on the Agro-Climatic Environmental Monitoring Project (ACEMP). The ACEMP project, a joint effort with NASA and the United States Agency for International Development (USAID), installed an early warning system for cyclones for the country of Bangladesh and it monitored the amount of snow melt from the Himalaya Mountains. David worked in Bangladesh for 3 months assisting in the installation of the system.

After graduating from the University of Maryland, David performed mechanical design work for lidar instruments. He later became Project Manager for the Laser Aperture Scanning Airborne Lidar (LASAL)

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Jeaneene Scarano

Jeaneene currently works for the Flight Projects Business Management Office, Code 403.

BORN: El Paso, Texas

EDUCATION: Graduated from Eleanor Roosevelt High School, then earned a Certificate of Diploma from Computer Learning Center in 1999, and now is almost finished earning her Bachelor's Degree in IT by attending the University of Phoenix in Columbia, Maryland.

ON FAMILY: Jeaneene currently lives in Glen Burnie, Maryland with her husband (Mike) and two children (Justin and Angela) along with their two Siberian Huskies and one very spoiled cat.

LIFE BEFORE GODDARD: "I didn't have a life before Goddard!" she claims. Jeaneene started working at Goddard during her senior year in high school and was ecstatic to land her first job here since she wanted to work for NASA ever since she was a little girl.

LIFE AT GODDARD: Jeaneene joined the Goddard family when she began in the Flight Dynamics and Analysis Branch in 1988. Her most horrifying moment happened during her first week when she was learning the phone system and accidentally hung up the phone on Buzz Aldrin. She joined the Flight Projects Directorate and worked in a variety Project offices including Hubble, Orbital Launch Services, Triana, and ST-5. Jeaneene feels very strongly that she has been blessed to work with everyone she has encountered and would not trade her experiences for the world.

INTERESTS: Jeaneene is looking forward to graduating from the University of Phoenix in May 2009 and is hoping to graduate with honors. Once she has her IT degree, Jeaneene hopes to obtain a job working either in Web page design or as a network/systems administrator. Jeaneene also enjoys planning parties, cookouts, and other events for her family, spending time with her family and pets, and going boating with her husband in either Deep Creek Lake, MD or Lake Anna, VA.

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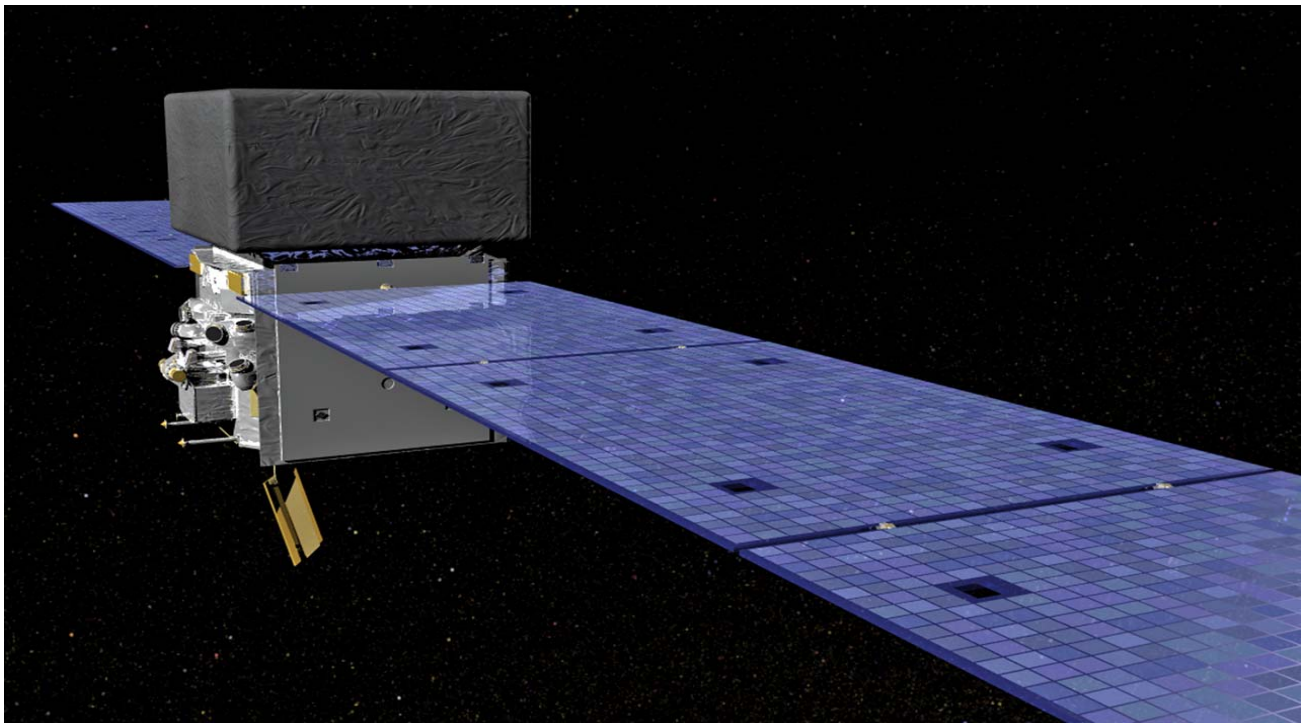
They passed their orbital checkouts with flying colors. "We all kept looking at each other in disbelief at how well things were going, "says Project Scientist Steve Ritz (Code 661).



NASA's Fermi Gamma-ray Space Telescope, formerly GLAST, is hard at work exploring the high-energy cosmos. Credit: NASA Conceptual Image Lab

From GLAST to Fermi

On August 26, Morse announced that NASA was renaming GLAST to the Fermi Gamma-ray Space Telescope. The new name, which honors Prof. Enrico Fermi (1901 – 1954), a pioneer in high-energy physics, was selected from more than 12,000 suggestions received from the public.

"Fermi was the first to suggest how cosmic particles could be accelerated to high speeds, and this work provides the foundation for understanding the powerful phenomena his namesake will observe," says Paul Hertz, Chief Scientist for the Science Missions Directorate at NASA Headquarters in Washington. In addition to his direct connection to gamma-ray science, Fermi holds special significance to the U.S. Department of Energy, the Italian Space Agency and the Italian Particle Physics Agency -- three major contributors to the observatory.

The Italian physicist immigrated to the United States in the 1930s. Better known for his work on the first nuclear reactor and for his major contributions to quantum theory, nuclear and particle

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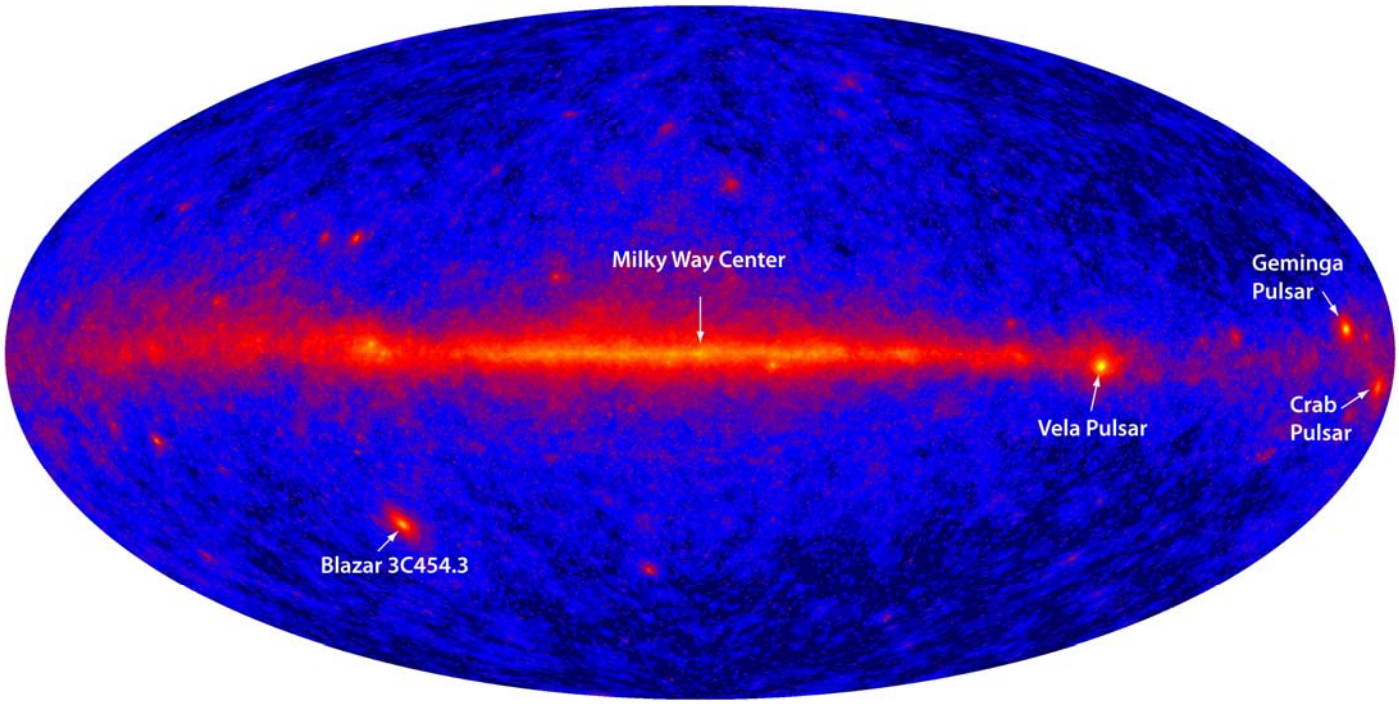
physics, and statistical mechanics, Fermi won the 1938 Nobel Prize in physics for research on induced radioactivity. Today, he is regarded as one of the twentieth century's top scientists.

The name change made it necessary to create a new logo. For the Fermi Gamma-ray Space Telescope, artist Aurore Simonnet of Sonoma State University, Calif., formed the initial "F" using an abstract version of jets arising from an accretion disk around a black hole. Scientists expect the Fermi telescope will reveal powerful processes near supermassive black holes at the cores of thousands of active galaxies.

First light

At the same media teleconference where Morse announced the mission's new name, the science team released the Fermi telescope's first glimpses of the gamma-ray sky. The most striking is an all-sky image made from 95 hours of LAT observations. A similar plot, produced by the EGRET instrument aboard NASA's now-defunct Compton Gamma-ray Observatory, took years to produce. "Already, with just four days of data, we've seen many sources previously discovered by EGRET -- and a number of new sources as well," says Peter Michelson, LAT principal investigator at Stanford University, Calif.

Diffuse emission in the plane of the Milky Way forms a bright band across the center of the image. Most of this radiation comes from gamma-rays generated as accelerated nuclei called cosmic rays collide with interstellar gas and radiation in our galaxy's disk. "As the LAT sky exposure builds up



This all-sky view from the Fermi Gamma-ray Space Telescope reveals bright emission in the plane of the Milky Way (center), bright pulsars, and active galaxies hosting supermassive black holes. Credit: NASA/DOE/International LAT Team

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with time, we are going to see deeper and deeper into our universe and will be able to study the low-intensity diffuse emission with unprecedented detail," Michelson says.

Other galactic sources -- pulsars -- glow brightly in the LAT's all-sky image. These fast-spinning neutron stars, which form when massive stars die, were originally discovered by their radio emissions. The Vela pulsar is the brightest persistent source in the gamma-ray sky, and the LAT team produced an animation that shows the source turning on as its beam of gamma rays sweeps toward Earth. The pulsar spinning at the heart of the famous Crab Nebula supernova remnant also shows up clearly.

A third pulsar, named Geminga -- from the Italian for "it isn't there" -- gives off no radio signal, but pulses in X rays and gamma rays. Because Geminga doesn't emit radio waves -- at least not in our direction -- astronomers class it as a radio-quiet pulsar. Astronomers have catalogued about 1,800 pulsars, but suspect there's a substantial number of objects that, like Geminga, may only make their presence known at high energies.

Prior to launch, mission scientists expected to locate upwards of 50 new pulsars in Fermi's first year, and the LAT team says it's on track to meet this prediction. Fermi researchers will discuss some of these discoveries in January at the American Astronomical Society meeting in Long Beach, Calif.

Gamma-ray-only pulsar

One new pulsar has already made headlines as the first one known to "blink" only in gamma rays. The LAT team announced the find October 16 in its first scientific paper, published in *Science Express*.

"This resolves a long-standing scientific mystery," says Fermi Deputy Project Scientist Dave Thompson (Code 661). "The CTA 1 supernova remnant contains an X-ray and gamma-ray source with all indications of being a pulsar, but no pulsations had been found at any wavelength." The remnant, located 4,600 light-years away in the constellation Cepheus, is the expanding gaseous shell from a star that exploded some 10,000 years ago.

Early data from the LAT detected a source near the center of the remnant pulsing gamma-rays every 316.86 milliseconds -- the first pulsar ever discovered using gamma rays. The object radiates more energy in gamma rays than our sun does in all forms of light.

A pulsar's beams arise because neutron stars possess intense magnetic fields and rotate rapidly. Charged particles stream outward from the star's magnetic poles at nearly the speed of light to create the gamma-ray beams Fermi sees. "We think the region that emits the pulsed gamma rays is broader than that responsible for pulses of lower-energy radiation," explains Fermi Goddard team member Alice Harding (Code 663). "The radio beam probably never swings toward Earth,

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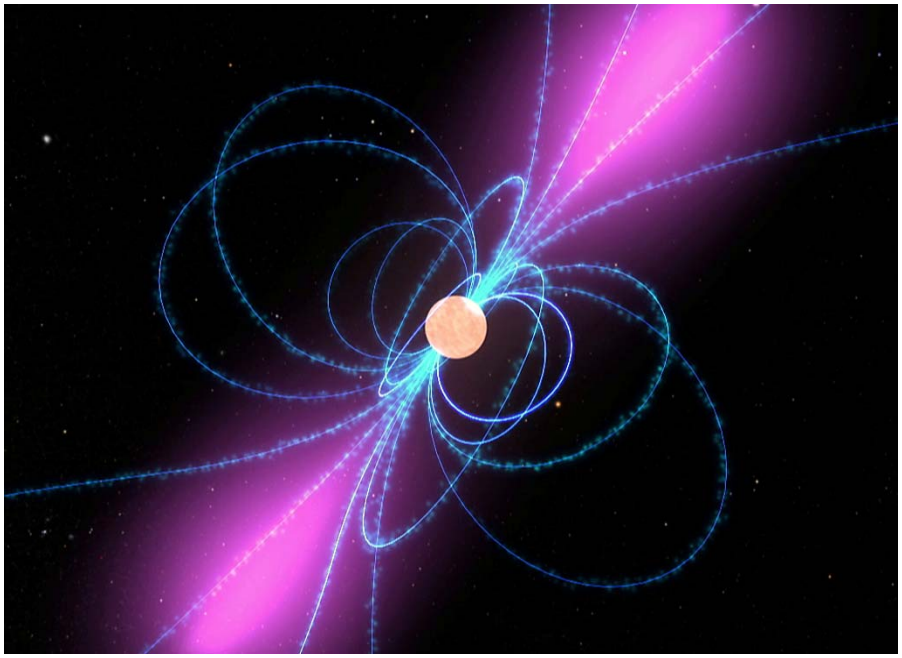
so we never see it, but the wider gamma-ray beam does sweep our way. Then again, we don't know -- it may actually not be giving off any radio emission."



One model of pulsar gamma-ray emission, illustrated here, involves clouds of charged particles moving along magnetic field lines near the poles of a spinning neutron star. These clouds create a lighthouse-like beam of gamma rays from the pulsar's poles. Credit: NASA

Because these beams are powered by the neutron star's rotation, they gradually slow the pulsar's spin. In the case of the CTA 1 pulsar, the rotation period is increasing by about one second every 87,000 years.

Interestingly, the CTA 1 pulsar is not located at the center of the remnant's expanding gaseous shell. Supernova explosions can be asymmetrical, often imparting a "kick" that sends the neutron star careening through space. Based on the remnant's age and the pulsar's distance from its center, astronomers believe the neutron star is moving through space at about a million miles per hour. This is a typical speed for "kicked" neutron stars.

Flaring blazars

Several bright spots in the LAT all-sky image are active galaxies undergoing high-energy flares. The brightest is 3C 454.3, which lies about 7.1 billion light-years away in the constellation Pegasus. "We detected it when it was in an extremely active state," Michelson explains. "Now, subsequent to this observation, 3C454.3 faded away in gamma-rays, only to be succeeded by yet another active galaxy, Parkes 1502+106, located almost 10 billion light-years from Earth."

Although astronomers suspect the flares arise from activity near supermassive black holes at the centers of these galaxies, they don't yet understand the detailed mechanism that produces the gamma-rays. The LAT's ability to capture the entire gamma-ray sky every three hours will let scientists catch flares on the rise and compare these events for thousands of galaxies. "When one of these things goes off, we see it coming, we see it peak, we see it go away, and that will provide us with tremendous insights into the physics of what’s generating that emission," Michelson says.

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Burst alerts

Although much of the attention deservedly goes to science from the LAT, Fermi's secondary instrument, the Gamma-ray Burst Monitor (GBM) is producing lots of results, too. "Based on the number of events detected since we powered up the instruments, we expect to see about 260 bursts per year," says Charles Meegan, GBM's principal investigator at Marshall Space Flight Center. "We're also detecting other interesting things, including flares from soft gamma-ray repeaters -- energetic neutron stars in our own galaxy -- and even brief flashes of gamma rays from terrestrial thunderstorms."

Four GBM bursts have also been detected by Goddard's Swift observatory. "This is important. It allows us to check our computed sky positions because Swift can do very accurate localizations," Meegan explains. "The LAT's sensitivity for detecting GRB emissions can be improved significantly if GBM can tell it where and when to look. Our job is to see the whole sky and identify burst locations well enough to point the LAT to them."

Bursts seen by both instruments will provide an unprecedented look across the gamma-ray spectrum, enabling scientists to peer into the processes that power these events. "The real value of the GBM and LAT working together is their tremendous energy coverage," Ritz notes. "GBM measurements place the LAT observations in context with earlier observations of GRBs. Together they will capture new behavior over a huge energy range."

Into the dark

The Fermi Gamma-ray Space Telescope mission is an international partnership between astrophysicists and particle physicists. "The scientific communities of particle physicists and astrophysicists from research laboratories and universities each brought their area of expertise to the mission to produce the telescope," says Dennis Kovar, Associate Director of Science for High Energy Physics at the U.S. Dept. of Energy in Germantown, Md.

A problem both groups hope Fermi will help solve is one that has vexed astronomers for decades: the nature of dark matter. Some unidentified substance influences normal matter -- like planets, stars, and galaxies -- through its gravitational influence, but neither produces nor impedes light.

One possibility is that dark matter consists of exotic particles. Some of the candidates physicists have proposed would produce gamma-rays when they collide. If so, some of the gamma-ray emission Fermi has already mapped in the Milky Way's disk may arise from dark-matter annihilation, although it may take years of LAT observations to determine this with any certainty.

Fermi's exploration of the high-energy universe continues on a fast track. The team is already planning the first Fermi Symposium for next November. "It's safe to say that 2009 is going to be a very interesting year," Ritz says.

Francis Reddy/Code 660.1
Senior Science Writer
Office of General Investigative Programs/Astrophysics Science Division

Comings & Goings

Comings:

Donna Montgomery to 450.1/Networks Integration Management Office, Financial Manager

Jerry Esper to 450/Exploration & Space Communications Projects Division, Security Lead

Beth Keer to 400/Flight Projects Directorate, Assistant Director

Goings:

Allen Levine retired from 450.1/Networks Integration Management Office

Gibran McDonald resigned from 441/HST Operations Project

Bill Stabnow transferred from 407/Earth Science Technology Office to NASA Headquarters

Diane Lim retired from 441/HST Operations Project

Sophia Qian transferred from 450/Exploration & Space Communications Projects Division to Code 150

Charles Naegeli retired from 460/Heliophysics Projects Division

Linny Dyson transferred from 400/Flight Projects Directorate to 100/Office of the Director

HST SM-4 Delay

Due to the significant HST malfunction affecting the storage and transmittal of science data to Earth, the SM4 launch date has been moved to May 2009.

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The objective of the Unpressurized Cargo Orion Project ("aka UPC- Orion") is to develop a capability on the Orion spacecraft to transport science satellites and small technology development payloads to orbit. The Goddard team, led by Project Manager Bruce Milam from Code 455, has the lead on UPC for Orion but is working closely with the Orion service module team at Glenn Research Center and the Orion project office at Johnson Space Flight Center.

UPC refers to the Orion spacecraft's requirement to deliver Orbital Replacement Unit (ORU) cargo of up to 600kg to the International Space Station (ISS) and other cargo to various destinations. The Exploration Carriers team use this Orion baseline capability to provide low-cost, low-risk opportunities for science and technology payloads with modes of flight that include attached payloads and free flying spacecraft.

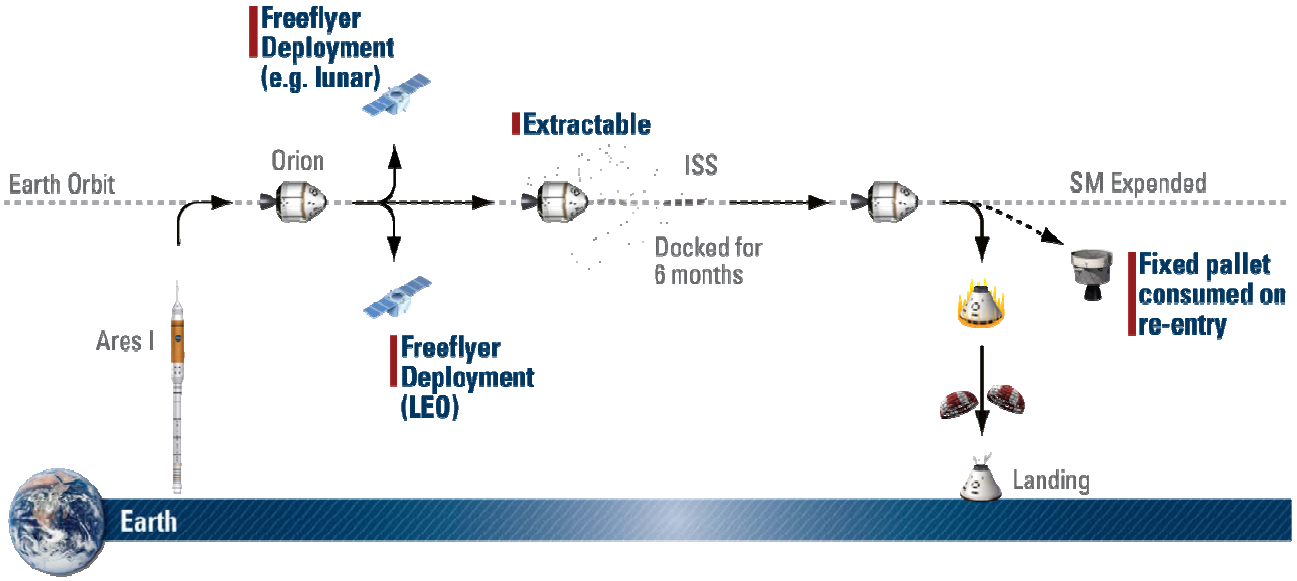

Figure 1: The Crew Exploration Vehicle - Orion low Earth orbit (LEO) missions to ISS will provide the first opportunity to integrate science payloads into the Constellation architecture

UPC Background:

The payload capability of Exploration Carriers has its roots in both the Apollo and Space Shuttle programs. The Apollo-era Scientific Instrument Module (SIM) Bay offered the capability to carry spectrometers, cameras, altimeters and other devices into orbit and it provided ejection capabilities for satellites from the service module into lunar orbit. As the space program evolved towards the Shuttle era, the Orbiter's payload bay accommodated a wide variety of payloads, from Get-Away – Specials to Hitchhiker experiments to complete spacecraft, thus providing increased access to a

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more diverse group of science payloads.

"This evolution demonstrates NASA's commitment to maximizing the capabilities of the space flight systems it delivers in a safe manner, provides alternative access to space pathways for the Agency, maximizes value for the American taxpayer, promotes quicker and more routine access to space and utilizes manned spaceflight assets for science and increases viable options for retiring Exploration Systems Mission Directorate (ESMD) acquisition risk," said Milam. "The Exploration Carriers project located at Goddard Space Flight Center (GSFC) will continue the heritage of these two programs, providing science flight opportunities during all phases of NASA's human spaceflight as we maintain the ISS, return to the moon, and extend our reach to Mars."

The Constellation Program (CxP) is the newest human spaceflight initiative created to replace the Space Shuttle, allow exploration out of low earth orbit and position NASA for future human Lunar landings and eventual Martian exploration. The UPC-Orion goal is to take advantage of the excess capability offered by Constellation to conduct useful science and technology investigations while not disturbing the core mission of human spaceflight. For example, at least 14 flight opportunities could be available during crew and cargo transport to ISS to fly science and technology payloads. These missions could include path finding technology for propulsion and communication; detector development; earth science data continuity; heliophysics; lunar orbiters and lunar landers. Minimal impact to Orion is envisioned for all operations accommodating deployable, extractable and fixed pallet style missions.

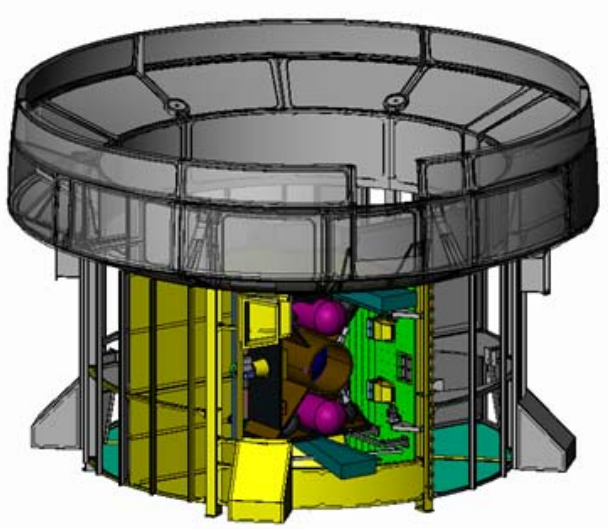

Figure 2: CAD model of the Orion Service Module for Exploration Carriers

Additionally, Exploration Carriers will align Constellation architecture science and technology payload capabilities with the small satellite (smallsat) industry to help provide potential mission opportunities for as many customers as possible. Exploration Carriers will use cargo capability baselined in various components of the Constellation architecture, such as the Orion Service Module, Aires V and Altair to provide opportunities for the science and technology community. The Constellation program, including the Orion spacecraft team, is tasked with producing the Orion and Aires flight hardware, and the Orion Program is tasked with implementing the processes necessary to manage and operate the Orion/Aires combination.

According to Milam, significant recommendations for the Constellation Program regarding the UPC include:

- Perform further study to enable high priority scientific and technology demonstrator missions.
- Seek out the scientific community input for viable science and technology candidate UPC Ex-

(UPC-Orion Continued on page 12)

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ploration Carrier missions.

- Prepare a UPC Functional Interface Requirements Document for Exploration Carriers to capture requirements to allow "smart" scarring of the Orion SM to accommodate UPC science and technology payloads. Smart scarring would consist of creating UPC accommodations and interfaces in the baseline design of the service module to ensure UPC capabilities and minimize cost and design modifications and retrofit operations in the future.
- Study the feasibility of utilizing the service module and its available propellant load after reentry of the Crew Exploration Vehicle (CEV) for UPC Capabilities.

How does it fit with the Exploration Community?

The Orion Exploration Carrier missions will provide new and unique opportunities to complete specific objectives for a diverse set of customers including the science, engineering and academic communities. This capability will fill the niche for small missions between sub-orbital parabolic

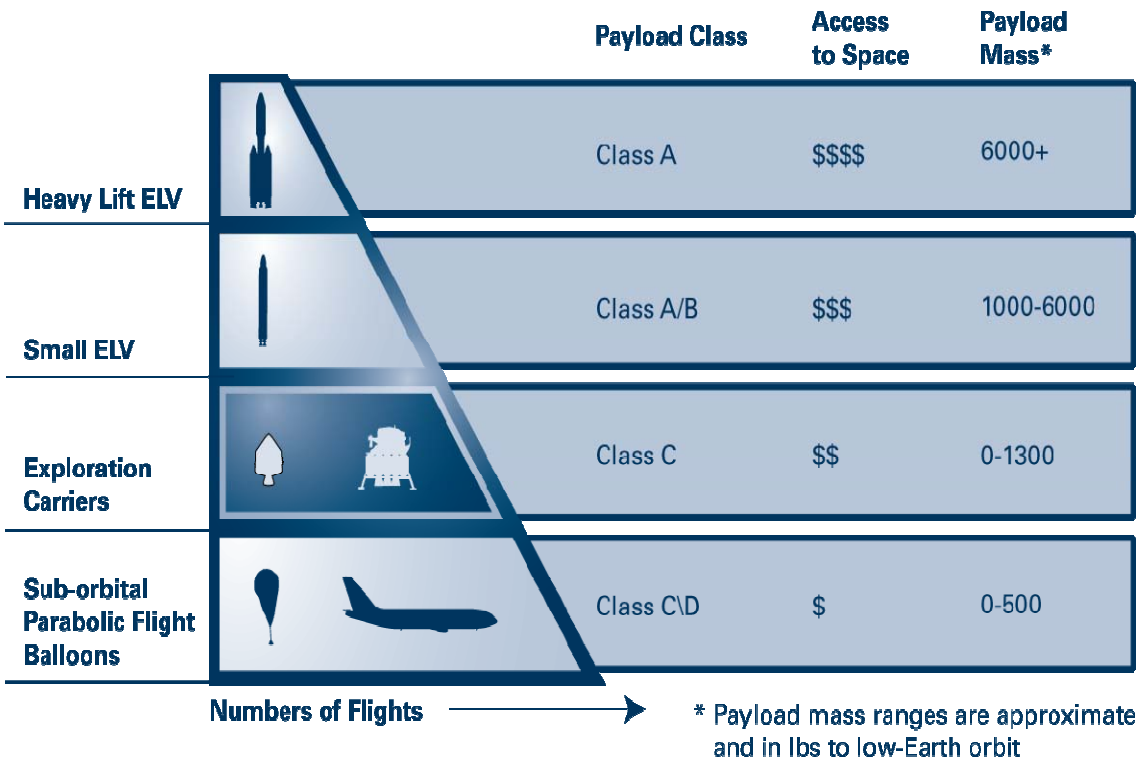

Figure 3: Exploration Carriers Opportunity

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flights, such as balloons or sounding rockets, and Class C (see Figure 3) Small Expendable Launch Vehicles. It will also allow the Agency to take full advantage of available space on Orion SM flights and develop a small payload capability that can eventually support missions beyond low earth orbit.

What's going on now and what's on the horizon?

Bruce Milam and his team are actively involved engaging stakeholders, gathering user requirements and in engineering activities. Their near term goal is make sure the Orion flight hardware has the proper attachments and utilities to take small science and technology payloads into orbit and beyond. The next major milestone of the project is the Orion Preliminary Design Review in June 2009.

Kay Kale
Associate
Strategic Communications

(Carter Tintype Continued from page 3)

instrument which flew on the Wallops P-3 aircraft in support of the Lidar In-space Technology Experiment (LITE) shuttle mission.

For the past 12 years, David has managed the eight NASA SLR stations which are part of a 43-station International Laser Ranging Service (ILRS) community that tracks scientific satellites. SLR uses lasers to measure ranges from ground stations to satellite borne retro-reflectors to the millimeter level for precision orbit determination. The NASA SLR stations are located at Greenbelt, Maryland (GSFC); Fort Davis, Texas; Monument Peak, California; Maui, Hawaii; Arequipa, Peru; Tahiti, French Polynesia; Hartebeesthoek, South Africa, and Yarragadee, Australia. David also serves on the governing board for the ILRS.

In addition to his technical work, David has been recognized with numerous awards for his outreach and volunteer services. Over the years, he has mentored students and participated in career fairs at elementary schools, middle schools, and high schools throughout the Washington Metropolitan area. David's most memorable achievement was in 1996 when as the president of the Goddard Black History Club, he was asked to coordinate a program for the late Ms. Rosa Parks and her youth organization. The program included a presentation by retired NASA Astronaut Fred Gregory, a model rocket launch at the Visitor's Center, and a tour of Goddard for Ms. Parks and the forty plus students.

Life Outside of GSFC:

David resides in Mitchellville, Maryland. He enjoys jogging, reading, traveling, and participating in sports. He spends his spare time coaching football, basketball, and baseball for the Kettering Largo Mitchellville (KLM) Boys and Girls Club in which his sons are participants. David also enjoys attending his daughter's cheerleading competitions.

Code 400 Peer Award Winners for 2008

Boundless Energy

Edwin Sofinowski, ESDIS Project
"In recognition of the boundless energy, enthusiasm, and commitment to excellence that you bring to all your tasks on the ESDIS Project."

Eric Moyer, Earth Science Mission Operations Project
"For your relentless outstanding support, diplomatic countenance and technical competence as the Terra Flight Systems Manager. Your dedication and efforts have contributed greatly to Terra's continuing successful mission performance."

Nick Speciale, Earth Science Projects Division
"For your proactive and tireless systems engineering activities on multiple Earth Systematic Missions (including GLORY, NPP, GPM and LDCM), special studies and technical assessments. Your efforts consistently go above and beyond the Program's standards of excellence."

Karla Kahler, Landsat Data Continuity Mission
"In recognition of your continuous energy, effort, and enthusiasm that you bring to the multitude of assignments that you have taken on for the Landsat Data Continuity Mission. Your agility and dedication make you an invaluable member of the LDCM team."

Steve Currier, Ground Networks Project
"For your boundless energy providing critical technical and managerial leadership to the Ground Network Project and for acting as a role model for its civil servants."

Mentor

Pietro Campanella, Exploration and Space Communications Projects Division
"Position descriptions are not limitations, especially for those in management roles of responsibility. Pietro Campanella goes beyond his standard duties to offer guidance and support to employees within his division, creating a welcoming environment through his guidance."

Carl Wagenfuehrer, Earth, Science Technology Office
"For the outstanding commitment and dedication to the professional development of other individuals, while leading by example and upholding the standards and ideals of the NASA family."

Mission Impossible

Craig Markwardt, Space Science Mission Operations Project
"For ingenious and pivotal contributions to the successful recovery of Swift to normal science operations after the TARA-1 anomaly."

(Peer Awards Continued on page 15)

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Debra Dodson, Exploration and Space Communications Projects Division
"For your tireless work and dedication in resolving the major and very complex problems in the Technology, Standards, Systems Planning Program. Your supreme investigative, analysis, communication and collaboration skills make you a major asset to the Project, GSFC and NASA."

Mike Kienlen, HST Development Project
"For accomplishing the seemingly impossible task of keeping the HST Development Project's constantly evolving and highly complex SM4 schedule fully coordinated with the Astronaut training program and the Space Shuttle Integration Template."

Tom Johnson, JWST Project
"For your dedication and commitment to the success of the NIRSpec Instrument and your excellent management of multiple organizations in several countries, you are deserving of the Mission Impossible Award."

Rookie of the Year

Cathy Stickland, Space Science Mission Operations Project
"This award is for showing true commitment, teamwork, and dedication in your first year with the SSMO Project – if only all rookies were like you!"

David Long, Earth, Science Technology Office
"The Rookie of the Year award is presented to David Long, whose outstanding performance in less than a year far exceeds that of many more experienced employees."

Steady Helm Award

Steven Smith, Earth, Science Technology Office
"For fostering an air of mutual respect, collaborative teamwork, and insightful creativity, while calmly treading forward, navigating volatile waters, the Steady Helm Award is presented to Steve Smith."

David Jeyasunder, Magnetospheric Multiscale Project
"In recognition of your outstanding engineering contributions to the Magnetospheric MultiScale Project."

Walter Asplund, POES Project
"In recognition of your outstanding support to the Polar Operational Environmental Satellite Project with the pre-launch, launch and early on-orbit checkout activities of the NOAA-14, -15, -16, -17, and –18 spacecraft and the NOAA-N Prime launch campaign."

(Peer Awards Continued on page 16)

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Unsung Hero

Toni Hegarty, Solar Dynamics Observatory Project
"For your outstanding leadership of the SDO Configuration Management (CM) Office and significant contributions to the Center's CM processes."

Ben Reed, HST Development Project
"For outstanding support to the Hubble Space Telescope Development Project in the arcane but critically important area of Materials Analysis. Your unquestioned expertise, as well as effective analytical abilities and communications skills, has earned you a position of deep respect."

Tom Weber, ESDIS
"To an invaluable member of the ESDIS Project, in recognition of your dedication and commitment to meeting the needs of the EOSDIS community. Your hard work, enthusiasm, and generous team spirit will not be forgotten."

Tina Schappell, JWST Project
"For your heroic efforts and exceptional support to JWST and the international science community."

Wild Card

Ed Ruitberg, Astrophysics Projects Division
"In recognition of your dedication, integrity, agility, teamwork, and numerous contributions to the Astrophysics Projects Division, which have enabled Code 400 to meet its commitments on the Hubble Space Telescope program while planning and developing future missions critical to the future of Goddard Space Flight Center."

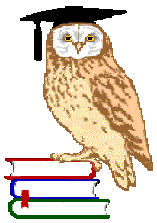
Andrew Uhl, Solar Dynamics Observatory Project
"For your tireless attention and creative solutions to the hundreds of contamination concerns of the SDO Observatory."

Jerry Nagy, POES Project
"This Wild Card Peer Award is given to Jerry Nagy in recognition of his outstanding leadership of the NOAA-N Prime Spacecraft rebuild environmental test program as Integration and Test Manager for the POES/TIROS Project."

Julie Janus, Lunar Reconnaissance Orbiter Project
"For your outstanding ability to ensure that LRO's critical procurements were awarded in a timely manner; your work behind the scenes helped us establish and meet our goals efficiently. You are an integral member of the LRO Team."

Congratulations To All The Winners

Quotes To Think About



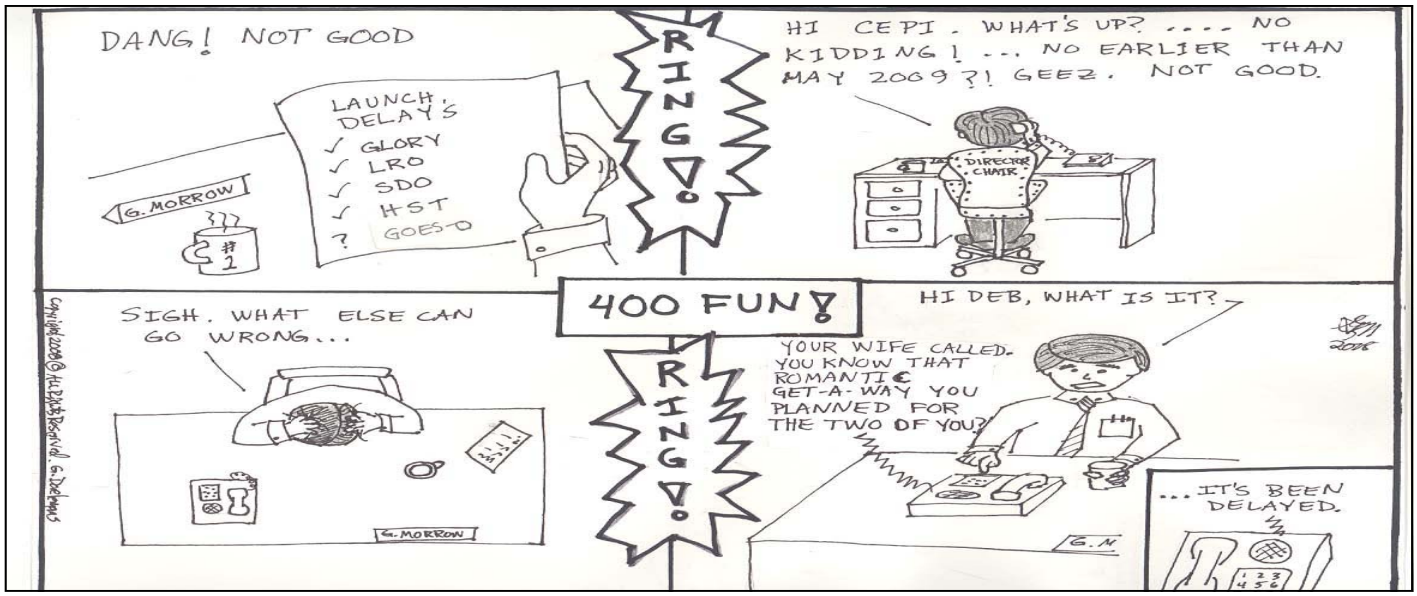
"Imagination is more important than knowledge."
- Albert Einstein (1879 – 1955) -

"A man may die, nations may rise and fall, but an idea lives on."
- John F. Kennedy (1917 – 1963) -

"Ignorance is bold and knowledge reserved."
- Thucydides (460 BC – 395 BC) -

"Swimming's not a sport. Swimming's what you do so that you don't drown."
- Woody Allen (1935 -) -

"After eating an entire bull, a mountain lion felt so good he started roaring. He kept it up until a hunter came along and shot him. The moral: When You're full of bull, keep your mouth shut."
- Will Rogers (1879 – 1935) -



The Goddard Honor Awards Ceremony was held on September 10, 2008

Noted below are awards to Code 400

EXCEPTIONAL ACHIEVEMENT AWARD (INDIVIDUAL)

Darryl Dye/Code 441
"In recognition of the HST CEB flight software development and test required for the new ACS-Repair ASIC."

Tony Foster/Code 441
"For your excellent support during HST Integration and Testing activities."

Peter Gonzales/Code 464
"For technical excellence and leadership in the development and successful completion of the Comprehensive Performance Test of the Solar Dynamics Observatory."

Dr. Sun Hur-Diaz/Code 441
"For Dr. Sun Hur-Diaz' outstanding technical insight and leadership in the design of new HST Science and Safing System control modes."

MANAGEMENT AWARD

Jean Grady/Code 445
"For extraordinary leadership of the NuSTAR capture study, the NEXT/SXS MoO proposal, and Constellation-X."

PROFESSIONAL ADMINISTRATIVE—INDIVIDUALS

Lisa Carroll/Code 400
"For your continued exceptional support of the Flight Projects Directorate's administration and staffing activities during periods of significant organizational change."

Mary Shifflet/Code 420
"For exceptional efforts and service in coordinating and managing resources for the NASA Earth Science community."

SECRETARIAL/CLERICAL—INDIVIDUALS

Deborah Hamby/Code 400
"In recognition of your leadership and sustained outstanding contributions to the success of Flight Projects Directorate missions as Directorate Executive Secretary."

(Honor Awards Continued on page 19)

(Honor Awards Continued from page 18)

CUSTOMER SERVICE—TEAMS

SDO High Gain Antenna System Team/Code 464
"For your astounding optimism and energy in recovering from the HGAS Unit #2 over-temperature incident with minimal impact to the SDO mission."

ENGINEERING—TEAMS

One-Gyro Science Mode Implementation Team/Code 441
"For developing two new, superbly performing attitude control modes for HST that will one day extend mission life—the One-Gyro Science Mode and the Kalman Filter Sun-Point Safe Mode."

Congratulations To All The Winners

Social News

Congratulations:

Rick King's (Code 443)12 year old son Slater was recently promoted to Orange Belt in American Kenpo Karate.

Lynn Wyatt (Code 460) became a grandmother on August 14th. Her granddaughter, Hannah Louise Whitaker was born to Lynn's daughter, Lauren, and her husband, Robert. Hannah weighed in at 7 lbs, 1 oz. Lauren, Robert and Hannah live in Chesapeake, VA -- close enough for weekend visits!

Shooting the Stars
From Hubble to the Big Screen

Mansoor Ahmed is the project manager for the Hubble Space Telescope (HST) Operations and the Laser Interferometry Space Antenna (LISA) projects. His day job involves shooting the stars in the heavens. In the evenings and weekends, he has been shooting the stars on Earth with his movie camera in making a feature length film. For all his life he has been fascinated with the celluloid screen. This fascination started back in his home-town of Peshawer, Pakistan, where as a child he lived across the street from the only English language cinema house in town. His father took him to see his very first film at the age of six, beginning his life long love affair with the cinema. So much so that he dreamed of becoming an usher at the movie theater when he grew up. He fell in love with not only the moving pictures but was also intrigued by the technicalities of filmmaking.

Moving to the United States as a young man offered Mansoor even greater exposure to quality cinema from around the world. He watched as many movies as possible and started becoming more interested in the process of filmmaking. Mansoor began to volunteer as a videographer for community events and stage productions where he gained expertise in the filming and in the production and editing processes. With these skills, he took on a technical advisory role for the production of a local Pakistani television program.

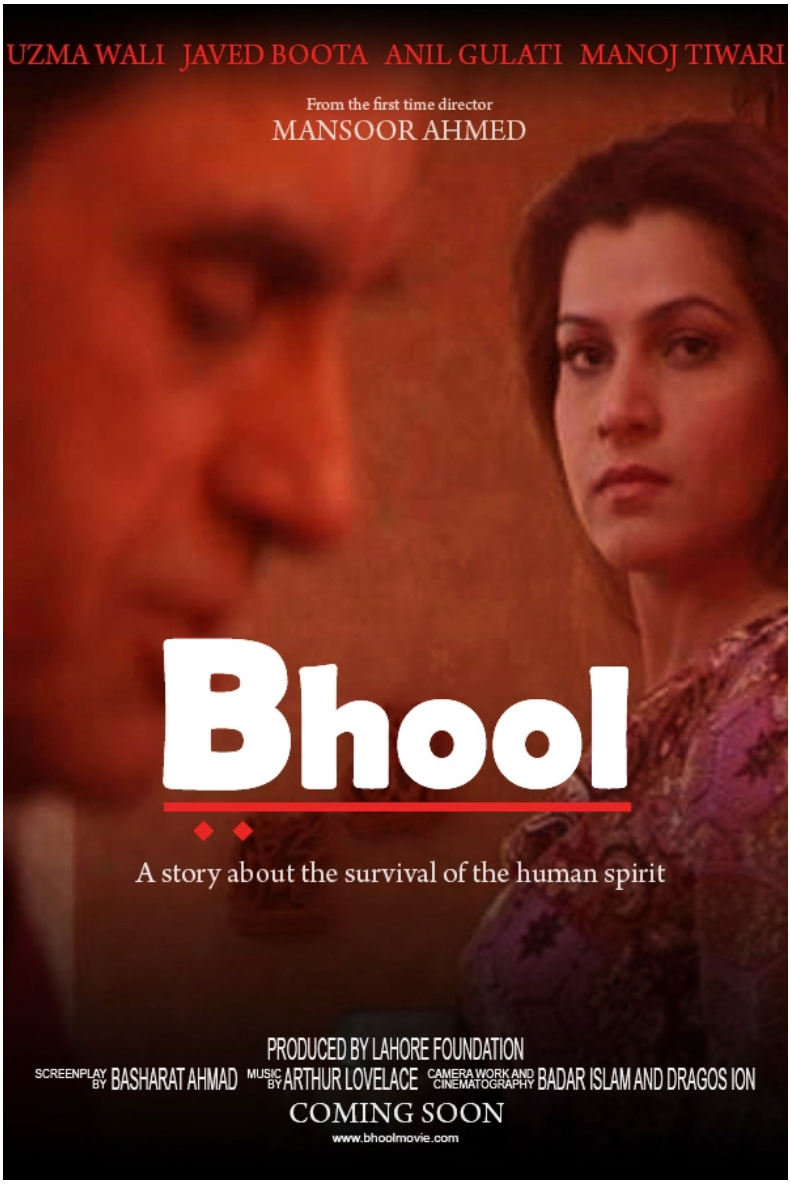
As Mansoor matured, so did his dream, from being an usher in a cinema hall to making a feature length film of his very own. This opportunity came when his good friend, the producer of a Pakistani television program, came to him with a proposal to do just that. His friend longed for the golden age of the Pakistani films of late 60's. The Pakistani film industry had declined to being practically non-existent. His friend wanted to re-create the nostalgia of that era by re-making an award winning Pakistani film of the 60's. He asked Mansoor to take over all aspects of the casting, directing, and editing of the film.

With only a shoestring budget to make the film, Mansoor counted on his associations with local performing arts groups for casting actors and to create an original sound track for the film. He relied on his family, friends and colleagues for filming locations and props. He even managed to cast his boss, Preston (Burch), as a fist-pounding director of a gliding club, a role that came naturally to Preston. A professional playwright from Pakistan was chartered to "modernize" the script for today's audience and re-locate the story to take place in America to facilitate the shooting of the film in the Washington Metropolitan area. Mansoor then began the grueling time consuming task of shooting, editing and sound mixing steps required to bring the film project to fruition.

(Mansoor Continued on page 21)

(Mansoor Continued from page 20)

The film is called *Bhool*, (which roughly translates to mean a mistake or misstep) and is in the Urdu language with English subtitles. It is the tender drama of a woman trying to put her tragic past behind her. Uzma, the main character has suffered devastating losses in her young life. In her therapy and escape, she immerses herself in growing a successful company. But in her need to protect herself from the realities of her fate, Uzma makes choices that will haunt her for the rest of her life. It is in how she must deal with these choices that lies the ultimate test of herself and her principles. *Bhool* is a sensitive portrayal of a woman's struggle to survive life's unexpected curveballs and the resilience of the human spirit. Although the story is set in the Pakistani community in America, the message and appeal is universal**.**



From the initial stages of planning to the final cut, it took Mansoor five years to complete his work. The film is being received with rave reviews and is being screened by local charity and student organizations in the Washington Metropolitan area as a fund raising activity for their causes. It is also being set up for web streaming through internet, in exchange for donations to "Pennies for Peace" an organization to help build schools for girls in Central and South Asia (a charity based on the book "Three Cups of Tea"). Mansoor is hopeful that he can screen the film for wider audiences in the very near future. He is, of course, continuing to pursue new opportunities for filmmaking in the future.

Mansoor has skillfully managed to fulfill his dream on a shoestring budget, the very skills he can now apply to managing the LISA project at Goddard.

Further information about the film can be found on the movie website www.bhoolmovie.com

Mansoor Ahmed/Code 441
Deputy Associate Director for Space Science Operations

Cultural Tidbit

Did you know…… that before Barack Obama made history by being the first African American to be elected President of the United Sates of America, the following African Americans also made history with their firsts in government:

Local elected official: John Mercer Langston, 1855, town clerk of Brownhelm Township, Ohio.

State elected official: Alexander Lucius Twilight, 1836, the Vermont legislature.

Mayor of major city: Carl Stokes, Cleveland, Ohio, 1967–1971. The first black woman to serve as a mayor of a major U.S. city was Sharon Pratt Dixon Kelly, Washington, DC, 1991–1995.

Governor (appointed): P.B.S. Pinchback served as governor of Louisiana from Dec. 9, 1872–Jan. 13, 1873, during impeachment proceedings against the elected governor.

Governor (elected): L. Douglas Wilder, Virginia, 1990–1994. The only other elected black governor has been Deval Patrick, Massachusetts, 2007–.

U.S. Representative: Joseph Rainey became a Congressman from South Carolina in 1870 and was reelected four more times. The first black female U.S. Representative was Shirley Chisholm, Congresswoman from New York, 1969–1983.

U.S. Senator: Hiram Revels became Senator from Mississippi from Feb. 25, 1870, to March 4, 1871, during Reconstruction. Edward Brooke became the first African-American Senator since Reconstruction, 1966–1979. Carol Mosely Braun became the first black woman Senator serving from 1992–1998 for the state of Illinois. (There have only been a total of five black senators in U.S. history: the remaining two are Blanche K. Bruce [1875–1881] and Barack Obama (2005–).

U.S. cabinet member: Robert C. Weaver, 1966–1968, Secretary of the Department of Housing and Urban Development under Lyndon Johnson. The first black female cabinet minister was Patricia Harris, 1977, Secretary of the Department of Housing and Urban Development under Jimmy Carter.

U.S. Secretary of State: Gen. Colin Powell, 2001–2004. The first black female Secretary of State was Condoleezza Rice, 2005–.

Also, African-American Firsts in Law:

Editor, Harvard Law Review: Charles Hamilton Houston, 1919. Barack Obama became the first President of the Harvard Law Review.

Federal Judge: William Henry Hastie, 1946. Constance Baker Motley became the first black woman federal judge, 1966.

U.S. Supreme Court Justice: Thurgood Marshall, 1967–1991.

And African-American Firsts in Diplomacy:

U.S. diplomat: Ebenezer D. Bassett, 1869, became minister-resident to Haiti. Patricia Harris became the first black female ambassador (1965; Luxembourg).

U.S. Representative to the UN: Andrew Young (1977–1979).

Nobel Peace Prize winner: Ralph J. Bunche received the prize in 1950 for mediating the Arab-Israeli truce.

Do you have a cultural tidbit to share? Send it to the Code 400 Diversity Council c/o Andrea Razzaghi @ andrea.i.razzaghi@nasa.gov and we'll publish it in a future issue.

2008 Presidential Rank Award Winners

In October, President Bush recognized more than 350 career Federal executives for their outstanding leadership and longtime service to the government.

Of the 353 recipients, 61 career employees were named Distinguished Senior Professionals or Executives. This distinction is limited to 1 per cent of the senior professional and senior executive corps.

Two members of the Goddard family were in receipt of this high honor.

Dr. John Mather (Nobel Laureate winner) (Code 665)

Rick Obenschain, Goddard Deputy Center Director (Code 100), and former Director of Flight Projects (Code 400)

The other 292 award recipients were named Meritorious Executives and Senior Professionals, an honor limited to 5% of the corps.

Three Goddard individuals won this honor.

Nick Chrissotimos (Code 460)

Val Burr (Code 200)

Dennis Andrucyk (Code 580)

Happy Holidays

From The

TCP Staff

www.nasa.gov

FUTURE LAUNCHES CALENDAR YEAR 2008/2009	
IBEX (SMEX-10)	LAUNCHED
NOAA-N'	FEB
GOES-O	APR
LRO	ARP
HST SM4	MAY
SDO (LWS)	JUN
GLORY	SEP
MSL/SAM	OCT
WISE (MIDEX-6)	NOV

ATTENTION INTERNET BROWSERS:

We're on the WEB
http://fpd.gsfc.nasa.gov/news.html
Or via the New "Code 400" Homepage
http://fpd.gsfc.nasa.gov

The Critical Path

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Paula L. Wood,
Editorial Assistant

If you have a story idea, news item, or letter for The Critical Path, please let us know about it. Send your note to Howard Ottenstein via Email: Howard.K.Ottenstein@nasa.gov, Mail: Code 403, or Phone: 6-8583. Don't forget to include your name and telephone number. Deadline for the next issue is March 27, 2009.