National Aeronautics and Space Administration

GoddardView

Volume 5 Issue 5

Goddard Watches NASA's Return to the Moon

Pg 3

New Piece of Test Equipment in Building 10

Pg 6

Goddard Astrophysicist Wins Alumni Award

Pg 11

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This Month in Goddard History

By Rob Garner

This Month in Goddard History is a new series celebrating the Center's history through stories and photos from the archives of the "Goddard News." ■

SHEPARD A-OKAY—GSFC PLAYS IMPORTANT ROLE

Elation of Goddard Center personnel over the complete success of the first manned Project Mercury ballistic flight is reflected in a simple, but meaningful message still on a status board in Building 3.

In small letters, the message says: Gargarin Unconfirmed.

In much larger type: SHEPARD A-OKAY.

To Goddard people—and the nation—the MR-3 flight by Navy Cmdr. Alan B. Shepard on May 5 was more than just a noteworthy scientific achievement.

Shepard's performance served to confirm the belief that man can perform useful functions in the space environment. During the 15-minute flight in which the astronaut was boosted aloft some 115 miles and 302 miles down the Atlantic Missile Range, Shepard controlled the capsule manually, working one axis—pitch, yaw and roll—at a time.

The Project Mercury Communications Network Center at GSFC (Building 3), which is designed primarily to support an orbital mission, participated in the suborbital MR-3 flight on a limited basis. This participation consisted of the use of high-speed data lines to carry launch parameters between the Cape and GSFC for trajectory and impact prediction computation. A ship intended for later orbital mission use in the Indian Ocean for capsule voice and telemetry contact, was placed in position in the Atlantic range for similar functions during MR-3. This ship was linked by a radio-teletype channel with GSFC for mission briefing and updating, and with direct radio voice length with the Mercury Control Center (MCC) at the Cape.

The radio teletype network was used by MCC to automatically broadcast mission progress information to all Project

(See SHEPARD A-OKAY on Page 2)

SHEPARD PRIOR TO FLIGHT . . . NASA Astronaut Alan B. Shepard, Jr. in the Project Mercury spacecraft just prior to its being sealed. Shepard successfully completed a 302-mile suborbital flight, the first in the Project Mercury Program.

RECOVERY BY HELICOPTER . . . NASA Astronaut Shepard as he was rescued by a U. S. Marine helicopter recovery team. The recovery took place following Shepard's successful suborbital flight on May 5.

SHEPARD A-OKAY

(Continued from Page 1)

Mercury stations around the globe to personnel with close interest and association with the project and the future orbital mission.

The "real-time" tracking program was loaded into the two IBM 7090 computers in Building 3. During the Redstone's flight, the Goddard computers received data from the Cape and computed many quantities which were then transmitted to the Mercury Control Center. In turn this data drove digital displays on the flight status consoles, drove numerous strip charts, and the wall map. The computers are operated in what is termed "real-time," since the data is received into the machine at the same time it actually happens at the source.

During the initial phase of a Mercury launch, the Goddard computers act as a back-up to the range safety computer at the cape, but assume their prime significance at the burnout just prior to the capsule's separation. At this time, the most important quantities that are computed and transmitted to the Control Center are the "present" (actual) position of the capsule as time progresses and its final impact point. It is significant to note that Goddard's participation is absolutely necessary for the Mercury missions to proceed.

After the successful MR-3 shot, James E. Webb, Administrator of NASA said:

"The National Aeronautics and Space Administration deeply appreciates the splendid work of every man and woman who has contributed to today's success—in government, in industry and in the press, radio and TV.

"Speaking for the Space Administration's four major divisions, our Office of Launch Vehicles, Space Flight, Life Sciences and Advanced Research, we are happy to accept President Kennedy's challenge to redouble our efforts and to proceed with utmost speed and vigor in the further development of our space program."

Caption: An article on Goddard's role in Alan Shepard's historic flight. From the June 2, 1961 issue of "Goddard News."

GoddardView

Volume 5 Issue 5

Table of Contents

Cover caption: NASA's *Lunar Reconnaissance Orbiter* and *Lunar Crater Observation and Sensing Spacecraft* on top of an Atlas V rocket launch from Complex 41 at Cape Canaveral Air Force Station.

Photo Credit: United Launch Alliance/Pat Corkery

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Goddard Watches NASA's Return to the Moon

By John Putman

Hundreds gathered in the Building 8 auditorium, and dozens of children and their parents assembled in the Goddard Visitor Center, to witness history. On June 18, at 5:32 p.m. EDT, an Atlas V rocket lifted NASA's *Lunar Reconnaissance Orbiter* (LRO) and *Lunar Crater Observation and Sensing Spacecraft* (LCROSS) into the sky and on to the Moon.

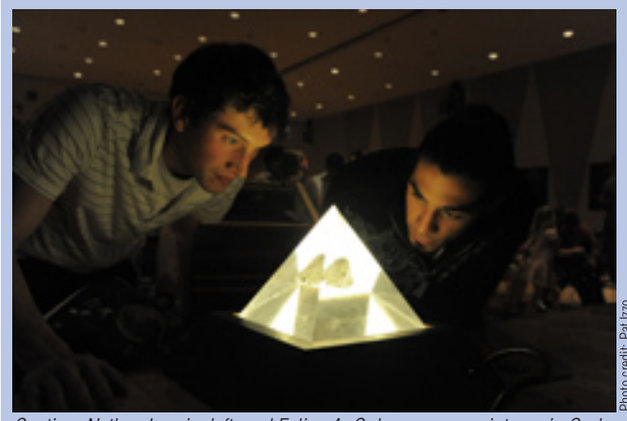

Photo credit: Pat Izzo

Caption: Nathan Lourie, left, and Felipe A. Colazo, summer interns in Code 665, inspect a Moon rock after watching the launch of LRO and LCROSS.

Before viewing the launch, those in the Building 8 auditorium were treated to a presentation by Paul Lowman, geophysicist, about the history of the Moon. Also on hand was Noah Petro from the Planetary Geodynamics Lab, who discussed LRO's mission objectives. The celebration included refreshments sponsored by NASA's Federal Credit Union.

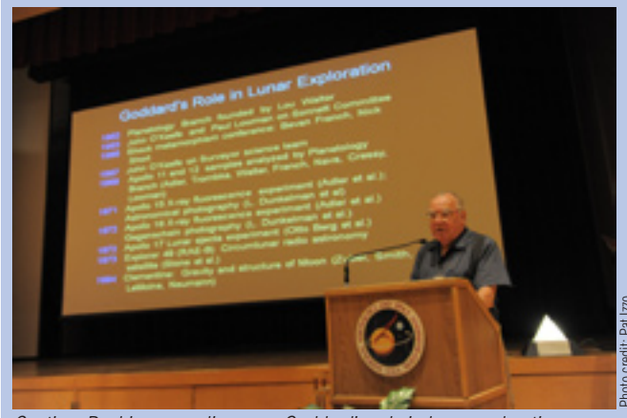

Photo credit: Pat Izzo

Caption: Paul Lowman discusses Goddard's role in lunar exploration.

At the Visitor Center, children participated in lunar-themed activities like assembling an LRO model and completing a "Moon pie" puzzle. Noah Petro also spoke to the crowd at the Visitor Center. Guests watched the Moon movie on the Science on a Sphere projection system. Visitors, some in space helmets, then watched the launch on big screens in the Earth Science Gallery.

Photo credit: Bill Hrybyk

Caption: The crowd gets into watching the launch of LRO and LCROSS.

LRO and LCROSS will use vastly different methods to study the lunar environment. LRO will go into orbit around the Moon, turning its suite of instruments towards the Moon for thorough studies. The spacecraft also will be looking for potential landing sites for astronauts.

LCROSS will guide an empty upper stage on a collision course with a permanently shaded crater in an effort to kick up evidence of water at the Moon's poles. LCROSS itself will also impact the lunar surface during its course of study.

On June 23, The *Lunar Reconnaissance Orbiter* successfully entered orbit around the Moon following a nearly five-day journey. Engineers at NASA's Goddard Space Flight Center in Greenbelt, Md., confirmed the spacecraft's lunar orbit insertion at 6:27 a.m. EDT.

Read more about the lunar orbit insertion on Page 5. ■

Two NASA Goddard Projects Move Forward

By John M. Putman

On the heels of the launch of the Goddard-developed *Lunar Reconnaissance Orbiter*, the Gravity and Extreme Magnetism SMEX (GEMS) mission has been selected as one of the Agency's future Small Explorer (SMEX) missions. Also, NASA Headquarters has given the *Magnetospheric Multiscale* (MMS) mission approval to begin its implementation phase.

The GEMS announcement caps a two-year effort by a dedicated GEMS team, led by the Principal Investigator, Dr. Jean Swank, to capture a new mission for Goddard. Goddard will provide overall project management for the mission and will be responsible for the GEMS science instrument. Sandra Cauffman (Code 400) is the Project Manager.

GEMS will use an X-ray telescope to explore the shape of space that has been distorted by a spinning black hole's gravity, and probe the structure and effects of the formidable magnetic field around magnetars—dead stars with magnetic fields trillions of times stronger than Earth's. Current missions cannot do this because the required angular resolution is far beyond what is technically feasible and, in the case of magnetic field imaging, can't do this because magnetic fields are invisible.

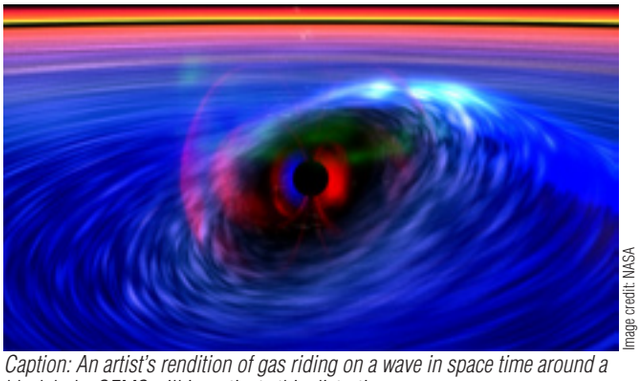

Image credit: NASA

Caption: An artist's rendition of gas riding on a wave in space time around a black hole. GEMS will investigate this distortion.

GEMS mission collaborators include Orbital Sciences Corporation, Dulles, Va., who is responsible for building the spacecraft and mission operations. ATK Space, Goleta, Calif., will build a boom to place the X-ray telescopes at the proper distance from the detectors. NASA's Ames Research Center will support the spacecraft development and provide science data processing software. The University of Iowa will perform the instrument calibration and will contribute a student experiment.

The advancement of MMS into implementation is the culmination of a tremendous effort from the entire MMS team. They completed all the requirements of Phase B including prototype sensor development, technology readiness demonstrations, technical products, control plans, and cost and schedule estimates.

MMS will investigate magnetic reconnection, a fundamental process in which energy stored in a magnetic field is converted into heat and charged-particle kinetic energy. On Earth, magnetic reconnection is the fundamental driver of space weather and produces the colorful lights known as aurora, or Northern Lights, in Earth's Northern Hemisphere. The MMS mission design consists of four identical satellites that will fly in highly elliptical Earth orbits in a tetrahedron formation with the satellites as close together as 10 km.

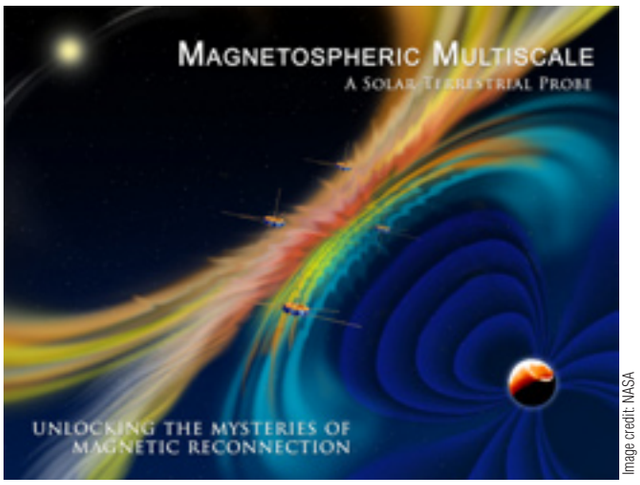

Image credit: NASA

The implementation phase for MMS will begin with designing, building, and integrating instruments and subsystems. Goddard will build the MMS spacecraft bus, integrate the spacecraft bus with the instruments, support launch vehicle integration and launch operations, and perform mission operations and management. Goddard will also develop the Mission Operations Center and provide all the flight dynamics support for the extensive maneuvering and orbit raising required for the mission. Goddard will also build the Fast Plasma Investigation (FPI), which is part of the instrument suite.

Dr. James L. Burch of the Southwest Research Institute (SwRI) is the Principal Investigator for the MMS science payload. SwRI is responsible for the mission science, development of the instruments, science operations, data analysis, theory and modeling, and education and public outreach.

Science team members and instrument development is provided by the University of New Hampshire, Johns Hopkins University Applied Physics Laboratory, Goddard Space Flight Center, University of Colorado, Lockheed Martin Advanced Technology Center, Rice University, The University of Iowa, Aerospace Corporation, and The University of California Los Angeles. International contributions to the MMS instrument suite are provided by the Austrian Academy of Sciences, Sweden's Royal Institute of Technology and Institute of Space Physics, France's Plasma Physics Laboratory and Toulouse Space Center, and Japan's Institute of Space and Astronautical Science.

Goddard Center Director Rob Strain said, "We are incredibly proud of the GEMS and MMS teams. I have great confidence in all the Goddard members of the two teams who bring decades of experience building and flying space missions and a commitment to mission success that is unmatched. I am excited about this opportunity. We've worked extremely hard to compete for, and earn our role in, these outstanding missions and I look forward to the important scientific information they will provide." ■

NASA Lunar Mission Successfully Enters Moon Orbit

By Nancy Neal Jones

After a four-and-a-half-day journey from Earth, the *Lunar Reconnaissance Orbiter* (LRO) has successfully entered orbit around the Moon. Goddard confirmed the spacecraft's lunar orbit insertion at 6:27 a.m. EDT on Tuesday, June 23.

During transit to the Moon, engineers performed a mid-course correction to get the spacecraft in the proper position to reach its lunar destination. Because the Moon is always moving, the spacecraft shot for a target point ahead of the Moon. When close to the Moon, LRO used its rocket motor to slow down until the gravity of the Moon caught the spacecraft in lunar orbit.

"Lunar orbit insertion is a crucial milestone for the mission," said Cathy Peddie, LRO Deputy Project Manager at Goddard. "The LRO mission cannot begin until the Moon captures us. Once we enter the Moon's orbit, we can begin to build up the data set needed to understand in greater detail the lunar topography, features, and resources. We are so proud to be a part of this exciting mission and NASA's planned return to the Moon."

A series of four engine burns over the next four days put the satellite into its commissioning phase orbit. During the commissioning phase, each of its seven instruments is checked out and brought online. LRO Project Manager Craig Tooley reported that the Lunar Exploration Neutron Detector (LEND) and the Cosmic Ray Telescope for the Effects of Radiation (CRaTER) are already online and working well. The commissioning phase will end approximately 60 days after launch, when LRO will use its engines to transition to its primary mission orbit.

For its primary mission, LRO will orbit above the Moon at about 31 miles, or 50 kilometers, for one year. The spacecraft's instruments will help scientists compile high resolution, three-dimensional maps of the lunar surface and also survey it at many spectral wavelengths.

The satellite will explore the Moon's deepest craters, examining permanently sunlit and shadowed regions, and provide understanding of the effects of lunar radiation on humans. LRO will return more data about the Moon than any previous mission.

For more information about the LRO mission, visit: http://www.nasa.gov/lro. ■

Photo credit: Pat Izzo

Caption: LRO Deputy Project Manager Cathy Peddie and other LRO engineers track LRO's progress in the Mission Operations Control Center.

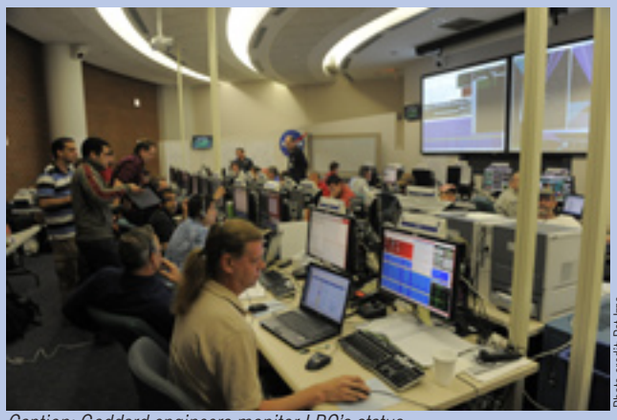

Photo credit: Pat Izzo

Caption: Goddard engineers monitor LRO's status.

Photo credit: Pat Izzo

Caption: Members of the LRO team toast their success.

New Piece of Test Equipment in Building 10

By Lynn Chandler

Photo credit: Debora McCallum

Caption: A team prepares for insertion of the helium shround.

If you have been over in building 10 lately, there is no way you could miss the newest piece of test equipment, a helium shroud. It could very easily be mistaken as part of the *Hubble Space Telescope* because of its color and size. It is a shiny, silver, 33.5-foot tall, 27-foot diameter cylinder for the *James Webb Space Telescope* (JWST) and it will be used to test the Integrated Science Instrument Module (ISIM).

The Space Environmental Simulator (SES) equipment, normally used to test spaceflight equipment at extreme temperatures, can only reach temperatures of –183°C and the ISIM must be tested at –234°C (–454°F). Therefore, the JWST program had to build a special aluminum thermal enclosure and this special new enclosure, or helium shroud, will be fitted into the existing SES, which is four-stories high.

JWST will be in an orbit at about 1.5 million kilometers (1 million miles) from Earth. This elliptical orbit will cool the ISIM detectors to operational temperatures of –234°C (–454°F). These extreme temperatures—known as cryogenic temperatures—pose many technical challenges for engineers and this cryogenic environment must be simulated to thermally test the ISIM and other subsystems of JWST. This testing will be done at Goddard in the new helium shroud.

The cryogenic environment is created with helium gas during ground testing. The gaseous helium, also very cold, is circulated through plumbing welded directly to the shroud walls, ceiling, and floor producing the cryogenic environment.

The cryogenic environment under vacuum will cool JWST and the ISIM flight hardware to required temperatures for testing. The helium shroud is capable of three configurations covering four different JWST test campaigns. Testing will begin later this year and run through 2011. ■

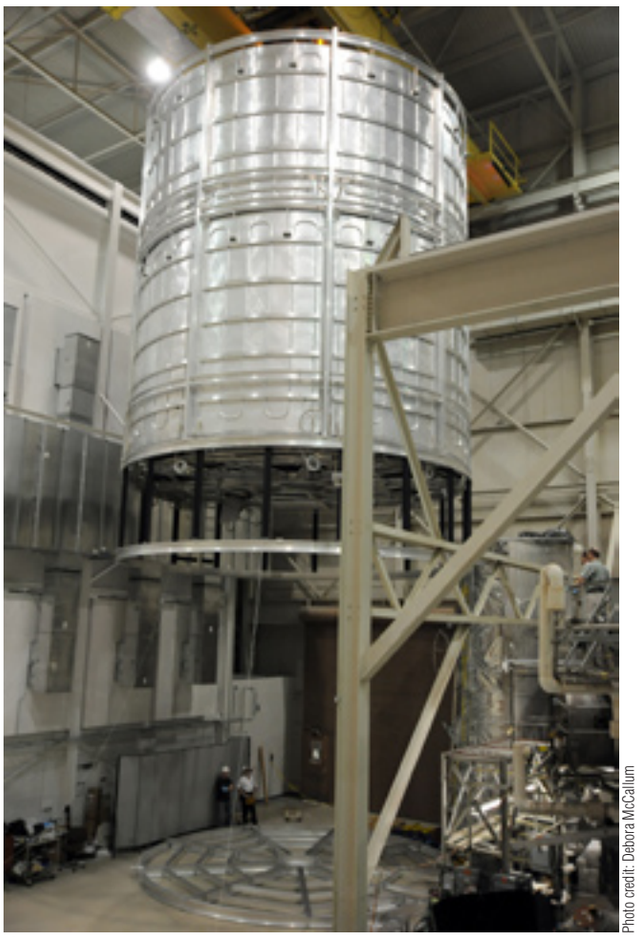

Photo credit: Debora McCallum

Caption: The helium shroud is lifted into position in preparation for insertion into the Space Environmental Simulator.

Solar Dynamics Observatory Media Day Welcomes Summer at Goddard

By Rob Gutro

The first week of summer brought warm temperatures and a Media Day for the *Solar Dynamics Observatory* (SDO) to Goddard. On this particular Media Day, reporters and producers visited Goddard to participate in a special media briefing and walking tour that highlighted SDO.

There are a couple of components of a Media Day, including presentations about the science and spacecraft, and tours of the testing facilities and mission operations center. Behind the scenes, there are the jobs of arranging to have reporters suited to go into a clean room, assembling a press kit with various informational brochures about the mission, organizing badges for visitors, transportation, and video support. It all came together on June 22.

Photo credit: Pat Izzo

Caption: SDO Project Scientist Dean Pesnell briefs reporters.

The SDO Media Day hosted reporters from *Aviation Week*, *The Bowie Star*, *The Greenbelt Gazette*, *The Washington Post*, WBAL-TV (Baltimore), WTTG-TV (Washington, D.C.), and WUSA-TV (Washington, D.C.).

Photo credit: Pat Izzo

Caption: Dean Pesnell guides a Baltimore News Channel 11 reporter Kim Dacey through Goddard's Integration and Test Facilities in Building 7.

Reporters heard exciting science and spacecraft presentations from Mission Project Scientist Dean Pesnell and Brent Robertson, SDO Observatory Manager. Dick Fisher, who oversees all of the heliophysics missions at NASA Headquarters, joined in at the end of the session and gave a talk on heliophysics and space weather, in addition to partaking in the questions and answers and one-on-one interviews with reporters.

Photo credit: Pat Izzo

Caption: SDO Ground System and Mission Operations Manager Raymond Pages explains the SDO Mission Operations Center in Building 14.

Reporters heard how SDO is unlike any other Sun-observing satellite in NASA's fleet. It will take measurements and images of the Sun in multiple wavelengths for at least five years, collecting a staggering 1.5 terabytes of data daily—the equivalent of downloading a half-million songs a day, enough to fill a CD every 36 seconds—at a resolution 10 times greater than HDTV. Reporters were amazed to hear that SDO will provide a "sonogram of the Sun," and reveal sunspots on the opposite side of the Sun, so we can know in advance when they'll be facing Earth as the Sun rotates.

The second part of the tour included a visit to the Building 7/10/29 complex, where Glenn Bock provided an overview of the "shake and bake" testing that satellites experience in the test and integration facilities at Goddard. The satellites are subjected to spin tests, audio tests, and extreme hot and cold temperatures to ensure they can stand up to the launch and the temperatures of space.

Reporters were excited about suiting up and going in the clean room that housed the SDO spacecraft. It was the last opportunity to see the spacecraft before it was wrapped up for shipping to the Kennedy Space Center in preparation for launch later this fall.

The final stop was a tour with Ray Pages of the SDO Mission Operations Center (MOC) in Building 14. Ray showed the reporters the four different areas of the MOC and explained that each room has a different purpose—from managing the satellite's orbit to monitoring the huge data stream to problem solving, and more.

It was a successful Media Day and a great learning experience for the reporters, public affairs officers, and others who took part in the day.

For more information about SDO, visit: http://sdo.gsfc.nasa.gov or http://www.nasa.gov/sdo. ■

Goddard Leading the Way for Space Communication Refurbishment

By Nancy Neal Jones

NASA is planning to upgrade its network infrastructure to support missions for the 21st century and is looking to Goddard to lead the way. Goddard's Code 450 is managing a soon-to-be-released multimillion dollar contract to upgrade the Space Network (SN) communication services for the Agency.

The mission of the Space Network Ground Segment Sustainment (SGSS) project is to implement a modern ground segment that will enable the SN to continue delivery of high quality services to the Space Network community, meet stakeholder requirements, and reduce required operations and maintenance resources.

Goddard's SGSS project plans to replenish and/or replace the existing Space Network Ground Systems in New Mexico, Maryland, and Guam. SGSS is addressing the issues associated with obsolescence of the existing architecture and is looking at ways to create a more flexible structure to address customer needs. The project will implement new methods for using the *Tracking and Data Relay Satellites* (TDRS) for orbiting missions and to improve methods of interface of customers with the Space Network Ground Systems.

Photo credit: NASA

Caption: An aerial view of the White Sands Ground Terminal Tracking Station on the White Sands Missile Range in New Mexico.

"The SGSS Project is currently developing the requirements and other documentation necessary to begin the source selection process," said Ron Miller, SGSS Deputy Project Manager. "We expect to award the contract early next year, with a multi-year integration effort to follow."

The Space Network is a data communication system composed of a constellation of TDRS spacecraft in geostationary orbit and a ground terminal complex employing high-gain microwave antennas. The ground stations send and receive commands and data to and from the TDRS spacecraft, which in turn receive and relay data from a multitude of low-Earth orbit satellites. The combination of elements comprising the SN provide global telecommunication services for telemetry, tracking, and command between low-Earth orbiting spacecraft, and customer control and data processing facilities.

A major element of the Ground Segment is the White Sands Complex located near Las Cruces, New Mexico. It consists of two functionally identical ground terminals, the White Sands Ground Terminal and the Second TDRSS Ground Terminal. Each ground station employs three 60-foot diameter high-gain microwave antennas. The ground segment ensures uninterrupted communications between the customer spacecraft and the customer control center.

Photo credit: NASA

Caption: Two of several 60-foot diameter high-gain microwave antennas that make up the White Sands Ground Terminal.

SGSS will begin work next year for the ground segment part of its plan. The work includes replacing ground terminals, data links, replacing White Sands software, and SN software.

"The SGSS Project will allow the Space Network to continue providing data transfer services with the same exceptional reliability in the future. In addition, the modern SGSS architecture will enhance the ability of the SN to field new services as missions request," added Miller.

Part of Goddard's future is maintaining our excellence in space communication. SGSS will help the Center accomplish this goal. ■

GOES-O Launches Successfully

By Cynthia O'Carroll

Photo credit: NASA/Kim Shiflett

Caption: Rising above the two lightning towers around the pad, a Delta IV rocket races into the sky with the GOES-O satellite aboard.

The latest *Geostationary Operational Environmental Satellite*, GOES-O, soared into space on June 27 after a successful launch from Space Launch Complex 37 at the Cape Canaveral Air Force Station in Florida.

The GOES-O satellite lifted off at 6:51 p.m. EDT atop a Delta IV rocket. From a position about 22,300 miles above Earth, the advanced weather satellite will keep an unblinking eye on atmospheric conditions in the Eastern United States and Atlantic Ocean.

The National Oceanic and Atmospheric Administration's (NOAA) GOES-O satellite will improve weather forecasting and monitor environmental events around the world. The satellite is the second to be launched in the GOES-N series of geostationary environmental weather satellites.

"All indications are that GOES-O is in a normal orbit, with all spacecraft systems functioning properly," stated Andre Dress, GOES Deputy Project Manager at Goddard. "We are proud of our support teams and pleased with the performance of the Delta IV launch vehicle."

Approximately 4 hours and 21 minutes after launch, the spacecraft separated from the launch vehicle. The Universal Space Network Western Australia tracking site in Dongara monitored the spacecraft separation.

On July 7, GOES-O will be placed in its final orbit and renamed GOES-14. Approximately 24 days after launch, Boeing Space and Intelligence Systems will turn engineering control over to NASA. About five months later, NASA will transfer operational control of GOES-14 to NOAA. The satellite will be checked out, stored in orbit, and available for activation should one of the operational GOES satellites degrade or exhaust its fuel.

The Friday evening before the launch, the Goddard Visitor Center hosted activities for kids and adults. Presentations included a GOES mission overview presented by Tom Renkevens, NOAA User Services Coordinator, and a GOES weather video.

Interactive computer activities educated children about GOES and about other NASA satellites that track animal migration patterns and have taken pictures of comets. Visitors had the opportunity to watch the launch on the large screens in the Earth Science Gallery. The launch was postponed until the following evening becasue of weather concerns at the launch site.

Photo credit: Debora McCallum

Caption: Tom Estill, Aerospace Education Specialist, helps a young visitor send her name to Mars.

NOAA manages the GOES program, establishes requirements, provides all funding, and distributes environmental satellite data for the United States. Goddard procures and manages the design, development, and launch of the satellites for NOAA.

GOES-O is the latest weather satellite developed by NASA to aid the Nation's meteorologists and climate scientists. The spacecraft in the series provide the familiar weather pictures seen on television every day. The satellites are equipped with a formidable array of sensors and instruments.

GOES provides nearly continuous imaging and sounding, which allows forecasters to better measure changes in atmospheric temperature and moisture distributions, hence increasing the accuracy of their forecasts. GOES environmental information is used for a host of applications, including weather monitoring and prediction models.

For more information about the GOES-O mission, visit: http://www.nasa.gov/goes-o. ■

Goddard Celebrates First Ever Science Jamboree

By John Putman

The Goddard Mall in front of Building 8 bustled with activity as the Sciences and Exploration Directorate sponsored the first ever Science Jamboree.

Photo credit: Debora McCallum

Caption: Tents covered the Goddard Mall for the 2009 Science Jamboree.

The Jamboree featured a science café on the Mall where Goddard employees and their guests had the opportunity to see, talk, network, and collaborate with scientists about their exciting current research and discoveries.

In the Building 8 Auditorium, there were displays and talks from senior scientists on major discoveries and future goals. The Building 8 activities included a panel discussion moderated by Dr. Nick White, Director of the Sciences and Exploration Directorate. The panel members were Dr. James Slavin, Director of the Heliophysics Science Division; Dr. Dorothy Zukor, Deputy Director, Earth Sciences Division; and Felicia Jones-Selden, Deputy Director, Astrophysics Science Division. The discussion focused on an overview of Goddard's science programs.

Photo credit: Debora McCallum

Caption: Guests enjoy hors d'oeuvres before entering the ballroom.

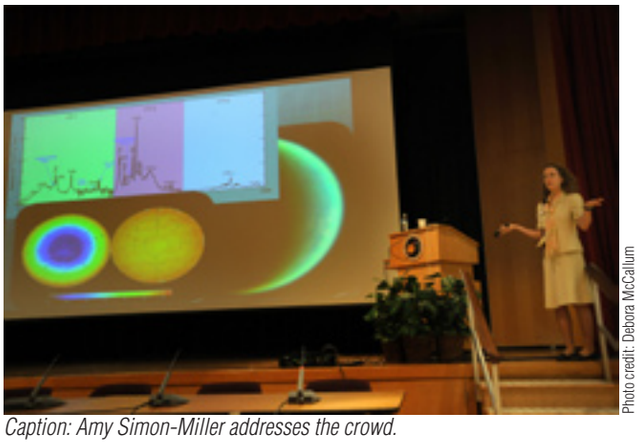

Photo credit: Debora McCallum

Caption: Amy Simon-Miller addresses the crowd.

There were two 20-minute science highlight presentations. Dr. Peter Hildebrand spoke on "The Climate, Politics, and Our Future" while Dr. Amy Simon-Miller, Chief of the Planetary Systems Laboratory in the Solar System Exploration Division, talked about "Exploring Dynamic Worlds."

The science café on the Mall consisted of tables with displays, posters, and monitors showing animations and visualizations of missions and programs. There were also free refreshments and a barbeque lunch available.

Photo credit: Debora McCallum

Caption: Laurie Leshin closes the Science Jamboree.

The Jamboree closed with a presentation by Dr. Laurie Leshin, Goddard's Deputy Director for Science and Technology, called "Future Directions for Goddard Space Flight Center." ■

Goddard Astrophysicist Wins Alumni Award

By Christina Coleman

In the twenty-first century, it might seem a bit archaic for science and engineering to still be considered a male dominated profession, especially at Goddard, which has the largest concentration of astronomers and scientists in the region. For Kim Weaver, it wasn't so much overcoming societal norms that expected her to assume a more traditional role as it was a battle to break down the obstacles between science and the general public. To reward Weaver's efforts in promoting science, she was recently awarded the 2009 Distinguished Alumna Award from the Astronomy Department at The University of Maryland, College Park.

Photo credit: Debora McCallum

Caption: Kimberly Weaver and her Distinguished Alumna award.

"This profession still has a bias," admitted Weaver, an astrophysics astronomer in Code 660 with a doctorate in astronomy from The University of Maryland (UMD). "It was important for me to win this award."

After the ceremony, the award recipients, one from each department at UMD, spoke to a crowd of students regarding their work and accomplishments. That was when Weaver realized she was the only woman to win the prestigious award this year.

"You could see on their faces it was nice to see success," Weaver said. She continued, saying that is was refreshing to see more females in the department and their male counterparts acknowledging their participation.

Though it is clear that Weaver's accomplishments have enhanced Goddard tremendously, Weaver remains humble and astounded that she could be considered for this award. Despite her work with the *Chandra X-ray Telescope*, black hole formation, active galactic nuclei, or being the Program Scientist for the *Spitzer Space Telescope*, Weaver said she was in shock to learn that she had won the award.

"The people who get these awards are enormous and they contribute so much to the field," Weaver said. "I haven't even published as much as these people." Weaver soon realized, however, that it wasn't how much work she did, it was the quality of the work.

"Quality over quantity. We tend to judge ourselves from measurement. We value breadth in a person. But what seemed to matter to them was my work with education. I'm a great promoter of science."

Weaver is referring to her ability to connect with the public and transmit science in a way that is understandable and easy to digest for most. She has been an integral part of science expansion through education and outreach. "We still need that filter to get science through," Weaver said. "I understand that the scientists and engineers here are focused. They are so immersed in their work," Weaver said about why science is usually hard to convey. "But my belief is that scientists are, in fact, good communicators."

"She has a passion for communicating science that is second to none," said Wade Sisler, Executive Television Producer at Goddard.

Weaver said a lot of what she does is a matter of inspiring, which is the greatest communicator. It was a book full of fuzzy images of galaxies that inspired Weaver to consider a career in astronomy when she was only 4 years old. When she was 5 years old, *Apollo 11* had just reached the Moon, which was an inspiration not only for her, but for the world. Unfortunately, that was also the day she was hit by a car and had to be rushed to the hospital. That trip to the hospital made her miss the initial broadcast of the Moonwalk, but she was inspired nonetheless.

"Inspiration doesn't require much work," Weaver said. "NASA is the best at inspiration, not education. We are inspirers."

It was that idea that has made Weaver a prime example for the students in the astronomy department at UMD, and to students and up-and-coming scientists everywhere. It is why she is truly deserving of this award, in addition to the pioneering work that she has done with X-ray astronomy.

"I never wanted to believe the sky was the limit," Weaver said. "As a matter of fact, I'm still trying to decide what I want to be when I grow up!" ■

Employee Spotlight: Matt Kirichok

By Lynn Chandler

Photo credit: Debora McCallum

Caption: Matt Kirichok.

Matt Kirichok is the Network Security Officer in the Engineering and Security Services Branch, Code 762. In this position, he is responsible for the physical security of the mission operation areas at Goddard, and information technology (IT) security for the NASA Integrated Services Network (NISN) mission network. Matt also serves as the team lead for the Mission Engineering Group and is the Communications Security Manager for Goddard.

Matt began his Goddard career in 1990 with the NASA Communications Network (NASCOM). He received his Bachelor of Science degree in electrical engineering from Northeastern University and later a Master of Science degree in electrical engineering from The Johns Hopkins University.

Since Matt started his career at Goddard, his job responsibilities have evolved from engineer to system administrator, into security engineer, and into his current position as the network security officer for the NISN mission network.

When asked to describe the most challenging part of his job, Matt said, "It is finding the right balance between Goddard's missions and protecting the IT resources for that mission." Matt has the responsibility to protect and control access to computers and to IT resources. It is, on the other hand, the objective of missions and projects to allow access.

Matt goes on to say, "It is challenging to get the mission operations people to understand how and why they need to protect themselves. It is my responsibility to monitor and provide IT security and keep system patches up to date while allowing the mission projects to still be able to get their jobs done."

Matt shared that out of all the opportunities he has had while at Goddard, being a participant in the 2006 class of Leadership Alchemy was by far the most life changing for him. Leadership Alchemy is a leadership development program. He experienced a personal transformation after completing this course. Prior to this class, he felt his work wasn't challenging and that he wasn't going anywhere or advancing in his career.

Leadership Alchemy gave him a different perspective of himself and changed how he viewed the tasks at hand. As a result of this leadership class, Matt has been asked to be a team leader for a group of engineers, and has often been called upon by management for his leadership skills. Matt said, "This class gave me the confidence to apply my leadership skills and that it is okay to show up authentically."

Matt said, "I find joy in working with the people in my home organization. We are like family and it is basically the same group it was when I started back in 1990. This group of individuals really cares about each other and Goddard's mission, and we all do whatever it takes to get the job done."

While not overseeing the security of Goddard's networks, Matt enjoys working in his large-scale garden model railroad and spending time with his wife, Nancy, and their 5-year-old son, Jason. ■