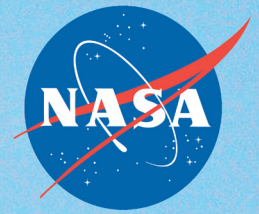


NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Goddard Space Flight Center
Explore. Discover. Understand



Return to Flight

Pg 3

New Horizons

Pg 5

Goes-N: Keeping Watch From Above

Pg 5

GoddardView



Message from the Director...

Colleagues,

Welcome to the first issue of our new Center newsletter, Goddard View.



Dr. Edward J. Weiler
Director of Goddard Space Flight Center

For those of you who have attended one of my "Can We Talk" sessions, you know that a consistent theme that came up during the sessions was the need to keep employees better informed about the goings on of our Center.

One of the tools that I have always believed to be effective in improving internal communications is a quality, printed newsletter. Not the

type of newsletter you have to search out and download onto your computer, but rather, a newsletter that, like the daily newspaper, shows up on your doorstep and you can carry around with you. So, during my "Can We Talk" sessions, I regularly polled people to see if they agreed with my notion, and indeed, you overwhelmingly confirmed it.

So, Goddard View is a direct result of what you told me, and I think you will find it is a dramatic and positive step toward improving communications throughout the Center. And, there's a lot more to follow.

Goddard View will be printed every other week, and will be distributed to every employee. Each issue will be filled with articles about the people who work here, and the work we do. Our goal will be to produce a publication that reflects the richness of this Center, from the incredibly wide spectrum of activities that go on at Goddard, to the fascinating stories about the employees who make this such a diverse and exciting place to work. And, of course, it will highlight our successes, and achievements, and the many significant contributions we make to NASA and the Nation on behalf of the American people.

I invite your comments and your contributions so that we can make Goddard View a valuable and indispensable tool that allows us to keep up with activities at the Goddard Space Flight Center.

If you have ideas or comments on what you'd like to see covered in the newsletter, or you'd like to submit an article, please contact the Public Affairs Office. They look forward to getting your feedback and ideas.



Table of Contents

Goddard Return to Flight

NASA Goddard & Return to Flight - **3**

Goddard Missions

New Horizons - **5**

Keeping Watch from Above - **5**

Mission Updates - **6**

Goddard & Education

GCDC Open House - **7**

ESSR Symposium - **8**

Goddard Diversity

The Wallops Forum on Religious Diversity - **9**

Goddard in the News

Upcoming Highlights - **10**

Goddard Bulletin

2005 VA Space Flight Camp - **11**

Safety Alerts! - **11**

Are You Compliant? - **11**

Goddard Family

In Memory of... - **12**

Employee Spotlight... - **12**

Date to Remember

July 18-22 NFB Rocket Camp at Wallops Flight Facility. NASA Wallops hosts 12 blind students for the second annual National Federation of the Blind "Rocket On" Camp.

July 20 Goddard Awards of Excellence Ceremony. It will take place in the Building 8 Auditorium at 10:30 a.m. followed by a luncheon at the GSFC Rec Center.

July 22 NFB Hosts Launch for the "Touch the Sun" Book. The new "Touch the Sun" book allows blind and visually impaired students to experience images of the Sun and solar activity by feeling transparent raised textures bonded to the pictures.

August 27-28 NBC4, Digital Edge Expo, Washington DC Convention Center. Event Link: <http://www.networkevents.tv>

NASA Goddard & Return To Flight

Goddard Team Supports Return To Flight

By Susan Hendrix

When officials at Johnson Space Center asked the Hubble Space Telescope Extravehicular (EVA) team at Goddard Space Flight Center to develop new tools for Return to Flight they rolled up their sleeves and got to work.

The Hubble team collaborated closely with Johnson Space Center and Langley Research Center to design, test and build new space hardware. A tool stowage caddy will hold an assortment of hand tools for on-orbit Shuttle tile repair and an EVA infrared camera will be used for Shuttle wing inspections. The team also developed a prototype laser contour gauge for non-contact measurements of damaged and repaired tile surfaces, and

NASA Goddard Providing Key Communications Support for Space Shuttle's Return To Flight

By Ed Campion

NASA Goddard Space Flight Center is providing key support in the Space Shuttle's return to flight mission by managing, operating, and controlling the agency's Spaceflight Tracking Data Network (STDN).

From lift off through landing, the astronauts aboard the Shuttle along with the thousands of people supporting the flight on Earth depend on Goddard's team of experts to manage this complex communication system.

Maintaining good communications is critical. Monitoring the status and performance of thousands of systems on the Shuttle, sending flight com-



Photo credit: Chris Guinn

Astronaut Linda Godwin works with NASA Goddard's Dan Motto in the checkout of an infrared camera to be used during EVA spacewalks for Shuttle wing inspection activities.

various concepts for worksite stabilization for inspection and repair from the new Shuttle boom, or arm.

JSC selected the HST EVA team based on their outstanding track record for developing unique astronaut tools, used to upgrade Hubble during four successful servicing missions.

"We delivered seven flight units of the Tool Stowage Caddy to Johnson Space Center in January," said Daniel Motto, lead EVA tool development engineer for Swales Aerospace. "This was the first flight hardware sent to Kennedy Space Center for Return to Flight," said Russell Werneth, EVA engineering manager at Goddard. "Our team is extremely proud that we directly contributed to this NASA-wide effort." ■

mands and navigational instructions, relaying science data, supporting voice communications between the astronauts and mission control along with video and live television feeds, are all accomplished through the team at Goddard.

The STDN is comprised of two systems – a ground based network composed of communication stations, and a space network operating orbiting satellites. The ground-based stations are located across the United States as well as various points around the world. These stations can be used to directly communicate with the Space Shuttle or to relay communications coming from the space network of satellites known as the Tracking Data and Relay Satellites (TDRS) system. The TDRS satellites are positioned in geostationary orbit - meaning they stay above the same spot

Continued on Pg 4

NASA Goddard & Return To Flight

Continued from Pg 3
on the Earth at all times.

As the Shuttle orbits the Earth, the Goddard team is monitoring and continually adjusting the communication pathways to ensure that command, tracking, telemetry, video and voice communications are clear and secure.

As with any challenging endeavor, there is always the key goal of having good communications, and thanks to the dedicated Goddard team, that goal will be met for every Shuttle mission.

Goddard Provides a Guiding Hand To The Space Shuttle

By Rani Chohan

An exciting day at Goddard's Flight Dynamics Facility (FDF) means something went wrong. That's why Jim Cappellari, mission analyst, hopes for a boring day, especially during a Space Shuttle mission. February 25, 1996, FDF experienced an exciting day when the Space Shuttle deployed a half-ton satellite attached to a 13 mile tether. Just as the tether was fully extended it broke. "We had two objects to track,"

Goddard's FDF is vital to man space flight operations and Return to Flight. Their job is to know where the Space Shuttle is, where it's going and where it could go no matter what happens and pass that information onto NASA's satellite and ground communication network. FDF provides info that tells where the communication antennas should point.

Communication antennas don't just automatically lock on the shuttle and follow the spacecraft where it goes. The communication network has to be updated regularly on shuttle location. If the flight is routine, the process is almost automatic. If the shuttle should have to make a maneuver or an emergency landing in Saragossa, Spain "we have data that is preprogrammed in our system," Mitchell says. "We'll send that particular data out and TDRS (Tracking and Data Relay Satellites) will shift its antenna point and then follow the shuttle as it goes to Spain."

The Space Shuttle has dozens of contingency landing sites around the world that can be utilized in the event of an emergency.

Located in Building 28, the FDF is probably one of the best places at Goddard to watch a launch, says Sue Hoge, Operations Director of the FDF. The glass enclosed room is filled with computers. During a launch



Network Director James Bangerter at NASA Goddard Space Flight Center briefs the new group of Johnson Space Center flight directors about the Network Integration Center that supports the agency's Spaceflight Tracking Data Network.

Photo credit: Chris Guinn

Cappellari says. The tethered satellite experiment was the centerpiece of a project to generate electricity in space. The Space Shuttle was never in danger, but when the chord snapped, scientists thought they lost the multi-million dollar experiment. Goddard tracked the tethered satellite for 48 hours as it moved away from the shuttle and eventually fell back into the Earth's atmosphere. "We didn't think we did anything that extraordinary that day," said Warren Mitchell, FDF mission coordinator. "A few months after the mission we found out scientists were able to get quite a bit of data [because we were able to track the movement of the satellite]."

and landing dozens of people watch computer screens, and listen to flight directors tracking the shuttles every move. Two large TV screens at the front of the room make it seem like a mini mission control.

FDF spends 80 to 90 percent of their time preparing and practicing for the "what ifs" in shuttle operations. In addition to emergency landing scenarios, FDF simulates computer failures, power outages and taking over mission control functions if Houston were to have a problem. ■

New Horizons

By Ronald Toland

History is coming to Goddard. For five months beginning mid-June, the New Horizons spacecraft will be at Goddard undergoing environmental testing in preparation for launch in 2006.

New Horizons follows in the footsteps of the Voyager and Pioneer missions, taking seven instruments where no spacecraft has gone before: Pluto. Today, even the Hubble Space Telescope can only capture Pluto, or its moon, Charon, as a fuzzy grey blob. We know Pluto has an atmosphere, and both it and Charon are likely made of various ices—water, methane, carbon monoxide—mixed in with a rocky crust. We do not know how the ice is distributed, how thick Pluto's atmosphere is, or how cratered the surface of either world might be.

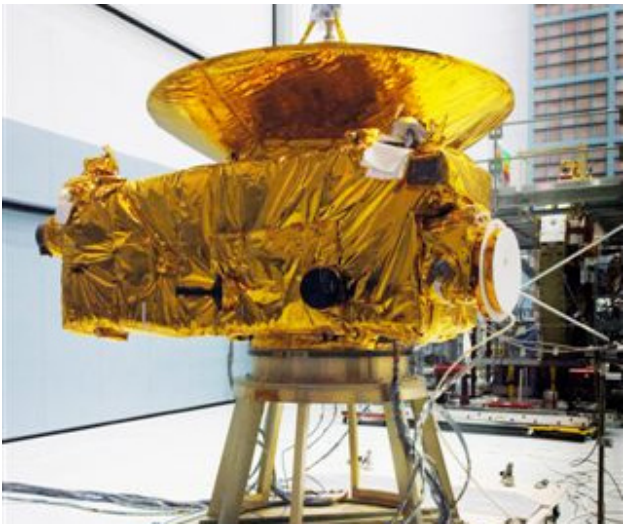


Photo credit: Chris Gunn

The New Horizons spacecraft awaits testing in the Spacecraft Systems Development and Integration facility at NASA Goddard Space Flight Center, Greenbelt, Md.

New Horizons will answer these questions. One of its primary instruments, Ralph, will map both Pluto's and Charon's surfaces, picking up features as small as 1 km (0.6 miles, or 2 city blocks). Ralph will also map surface temperatures across both worlds, and tell us what chemicals are in their crusts. A second instrument, Alice, will examine Pluto's atmosphere, giving us our first weather report from 4.5 billion kilometers (2.7 billion miles) away. Other instruments onboard New Horizons will measure the effects of the solar wind and other energetic particles around Pluto.

As if these discoveries will not be enough, after flying by Pluto-Charon in 2015, New Horizons will head out to the Kuiper Belt, a collection of smaller Pluto-like objects that forms the edge of our solar system. Along the way, the New Horizons science team will choose one or two of these Kuiper Belt Objects (KBO's) for closer study. By altering the spacecraft's flight path, they will bring New Horizons close enough to these KBO's to map them out as thoroughly as Pluto. We know even less about the Kuiper Belt than we do about Pluto; by allowing us to study these planetesimals in addition to the never-explored ninth planet, New Horizons will more than live up to its name.

Continued on Pg 6

Keeping Watch From Above

By Cynthia O'Carroll and Cheryl L. Mansfield

Like guardian angels, the GOES spacecraft keep a constant vigil over us. They're always on the job, bringing weather data that can predict a beautiful weekend for a picnic, or the potential strike of a terrifying hurricane.

The latest GOES satellite, GOES-N, is being prepared for launch from Cape Canaveral Air Force Station in Florida. After launch and checkout, the new satellite will be stored as an in-orbit spare and remain ready to join the other operational satellites operated by the National Oceanic and Atmospheric Administration (NOAA).

The GOES - or Geostationary Operational Environmental Satellites - are a joint effort between NASA and NOAA. "The GOES environmental satellite data is a basic element of U.S. weather monitoring and forecast operations, and is used by meteorologists to update the public on the changes in our daily weather," says the NASA GOES Deputy Project Manager, Andre Dress. "This vital information is constantly streaming down, 24 hours a day, 365 days a year."

"The GOES satellites can see approaching storms which enable the proper authorities to issue warnings and to manage resources in an effort to minimize the potential harm to people and property," says Dress.

NOAA's goal is to have two GOES satellites -- known as GOES-East and GOES-West -- operating at all times. Combined, the two satellites provide continuous data while covering 60 percent of the Earth's surface, including the continental United States. The new series of satellites, which begins with the GOES-N spacecraft, is scheduled to replace the aging current geosynchronous satellites and employs improved on-board technology for more accurate weather prediction.

Having an in-orbit replacement satellite "on station storage" means the GOES constellation recovery time can be measured in increments of days, rather than the years it would take to prepare and launch a satellite stored on the Earth. That time difference would be especially crucial if a GOES satellite failed during the peak of the hurricane season.

Although constant weather monitoring has the most direct affect on our daily life, these satellites serve other important needs as well. The GOES satellites also provide instantaneous relay of distress signals from people, aircraft, or marine vessels to the search and rescue ground stations of the Search and Rescue Satellite Aided Tracking (SARSAT) System. A dedicated search and rescue transponder on board GOES is designed to detect emergency distress signals originating from Earth-based sources. These unique

Continued on Pg 6

New Horizon
Continued from Pg 5

Goddard has a critical role in this historic mission. The infrared spectrometer inside Ralph—called the Linear Etalon Imaging Spectral Array (LEISA)—was developed at Goddard by Dennis Reuter and Don Jennings of Code 693. This spectrometer will provide the temperature and chemical composition surface maps of Pluto, Charon and any KBO's New Horizons visits.

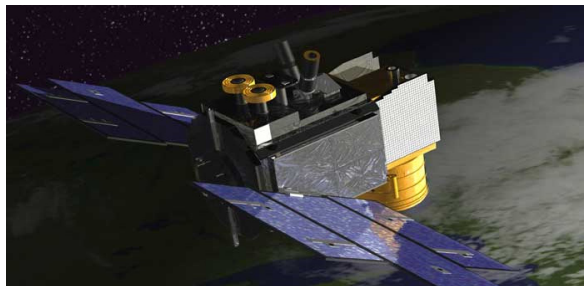
Code 553 personnel—including Vincent Bly, Sridhar Manthripragada, Tsu-wei Hwang, Jay Cho, and Laddawan Miko, among others—were responsible for much of the design, assembly and testing of LEISA. Environmental testing of the instrument was done here with the help of Timothy Schwartz and Craig Stevens of Codes 549 and 542, respectively. The team used Goddard's own Detector Characterization Lab to verify the instrument met its performance requirements before shipping it to Ball Aerospace for integration with the rest of the spacecraft.

Dr. Reuter, who serves as Ralph Project Scientist and, along with Don Jennings, guided most of the work on LEISA, is very pleased with the results. "Everyone did a great job," he says. "We had a small, dedicated team of people who came together and allowed us to deliver a complex instrument in just two years."

Thanks to their hard work, another world will soon open up to us. Pluto and Charon will suddenly be a lot closer, and much better understood. ■

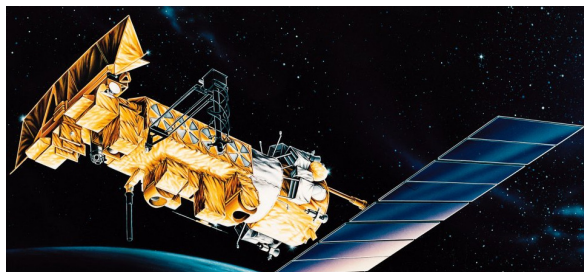
Mission Updates

The ICESat (Ice, Cloud, and Land Elevation Satellite) Mission is well into its third year of operations. It completed its seventh science operations period on June 23rd. Further analyses are underway to evaluate the available data across the great polar ice sheets that are the mission's primary goal to determine what areas are changing and by how much.



ICESat (Ice, Cloud, and Land Elevation Satellite)

NOAA N - NASA successfully launched a new environmental satellite for the National Oceanic and Atmospheric Administration (NOAA) on May 20. As of June 9, the last set of instruments were activated on NOAA-18 and GSFC handed over the health and safety operation of the satellite to



NOAA N - NOAA's new environmental satellite launched by NASA

Keeping Watch from Above
Continued from Pg 5

identification signals are normally combined with signals received by NOAA's Polar Operational Environmental Satellite system and relayed to a search and rescue ground terminal. The combined data are used to perform effective search and rescue operations.

The satellites also contribute to worldwide environmental monitoring, help with solar environment disturbance detection, and provide data scientists use to understand the atmosphere.

GOES-N is scheduled for an early summer 2005 liftoff aboard the new Boeing Delta IV rocket. With the Delta IV's two solid rocket boosters, the Launch Vehicle will insert the satellite into an orbit that will allow the spacecraft to save fuel and provide NOAA with an expected lifespan, in space, in excess of 10 years.

After NASA completes the satellite's launch and in-orbit checkout, NOAA will take over its day-to-day operation in order to maintain an unblinking vigil from the sky. For further information on the GOES-N launch please visit <http://www.nasa.gov/missions/earth/goes-n> ■

NOAA, ending the around-the-clock support at the Satellite Operations Control Center by the GSFC Polar Operational Environmental Satellite Project.

GOES N- A new geostationary operational environmental satellite (GOES) is ready for launch and will be available to replace one of the two operational GOES spacecraft if one experiences trouble. The satellite, named GOES-N, is scheduled to lift off in Mid July from the Cape Canaveral Air Force Station in Fla. When GOES-N reaches orbit, it will be renamed GOES-13, and put in a storage mode until it is called into service.



GOES N (Geostationary Operational Environmental Satellite)

Astro E2 The Japan Aerospace Exploration Agency (JAXA) has announced plans to launch this major new space observatory on July 6. Astro-E2 will study black holes and the creation of chemical elements necessary for life. Astro-E2 includes a pioneering X-ray instrument, called the high resolution X-Ray Spectrometer (XRS), and 5 X-ray Telescopes (XRTs), all developed at GSFC. ■

GCDC Open House

By Amy Pruett

Goddard's Child Development Center (GCDC) a NAEYC accredited and MSDE certified learning center, hosted an Open House on April 8th where parents were invited to tour the center, observe classes, and receive additional information about the center.

The center used the Open House as an opportunity to show the public the commitment level of the GCDC and its staff to its students. The center's staff includes 3 administrative employees, and 23 teachers to care for the 118 children attending the GCDC. With GCDC being certified by the Maryland State Department of Education (MSDE), each Lead Teacher obtains a Bachelors Degree in Early Childhood Development, with the exception of a few Lead Teachers that obtain a Master's Degree. This also exceeds the Child Care Administration requirements. In addition, each teacher is dedicated to providing their students with the finest learning environment possible.

The GCDC gives children a head start, and paves the way for great achievement in their later school years as well as in life by establishing a good learning environment.

Pauline Jones teaches 4- year-olds and has worked at the GCDC for 4 years. She loves visits from former students. "It gives me great satisfaction to know that the children are thriving outside of the center..." said Jones.

Everyone is treated like family at the center which is why they are so successful. "It's a close-knit family environment; they share our lives, we share theirs," said Jones. Constant communication between the parents and teachers is key.

The center hosts classes that are creative and challenging, and feature exciting activities that stimulate the children.

"We create a stimulating environment in which children can learn through play," said Elka Forbes, the Director of the center. "We facilitate an open learning process." For instance, every classroom is equipped with a sensory table that features various textured objects each week such as sand, water, and rice. Children are encouraged to play with the items, giving them the opportunity to discover the unique characteristics of each one, as well as practice sharing, learn about measurements, and develop creativity. The children learn without realizing they are doing more than playing with their friends.

Khrista White, Vice President on the Board of Directors of the GCDC, has two children currently enrolled at the center. She attributes the advancement of her girls in their manners, ways of expressing themselves, and methods of interaction to the work of the teachers at the GCDC. "They will work with you to ensure that there is continuity between the school and the home," said White. "This makes sure that there is consistency in the child's life, not only in academics, but also skills such as potty training."

The evidence of the CDC's excellence is apparent in every aspect of the center. From the teachers, to the students, to its 33 year history, it has fostered happy, healthy, and socially advanced children. Those interested in finding out more information about Goddard's Child Development Center should contact Elka Forbes at Elka.S.Forbes.1@gsfc.nasa.gov ■



Photo credit: Chris Gunn

Learning to share and cooperate with others in the sandbox at recess is one of the positive behaviors that the GCDC fosters.

ESSR Symposium - Spring 2005

By Deborah Jensen

Twenty-two students from Catocin High School, in Thurmont, Maryland displayed the results of research they did in their Earth System Science Research Course (ESSR). This is a unique course currently offered at only two high schools in the state – both from Frederick County. Students in this course are taught the fundamentals of Earth System Science for one semester then complete a research project for the second semester. The research is based on data from NASA and other agencies that the students find on the web. They are trying to find a correlation between two phenomena such as, “The Effects of Solar Cycles on Icebergs.”

The students' day started off with a talk by Dr. Jonathan Rall, code 694 and Joe Kujawski, code 612.3, on their fieldwork experiences in Antarctica. The students were excited to hear about the experiences of people doing 'real' science – especially in such a unique setting as Antarctica. They listened intently as the two gentlemen told of the extremes of trying to keep equipment and science experiments working in such cold weather.

The students then presented the results of their research projects in a poster session open to Center personnel. Approximately fifty people came to see the posters and many spoke with the young researchers about their work. One student commented that “a real nice man, (Dr.

James Green), spoke to me about what he liked about my project and how I could have improved it. I was surprised that he was so interested in my work until he pointed out that the data I was using was from his work. That was really cool to actually meet the guy whose data I was using.” Lisa Bruck, the student's teacher, was very pleased with the turn out and said that her kids had worked extremely hard on their projects. Many of the students who never thought they could do research are now considering careers in science. One young man who is a senior in high school said he went away “confused in a good way.” He was sure that he wanted to be a journalist or political science major but now is considering other options.

While the poster session occurred in Building 33, five other students shadowed engineers and animators who work on center. These students completed the ESSR course last semester and presented this past January. They are all considering science-related careers and jumped at the opportunity to see the type of work done here at Goddard.

Special thanks go out to all those who helped make the day such a success. Dr. Rall and Joe Kujawski for their presentations; Scott Hull, Carmine Mattiello, and Vicky Weeks for working with the student shadows; Alan Lampe and DJ Emmanuel for the tours; and finally, to all those who stopped by to share your valuable time inspiring the next generation of explorers. ■



Students presented the results of their research projects in a poster session open to Center personnel.

Photo credit: John Leck

Through My Eyes: The Wallops Forum on Religious Diversity

By Alana Little

NASA has always prided itself on promoting diversity in the workplace and on May 16th, 2005 lecturers and interested participants from various religious, social, and ethnic backgrounds gathered at Wallops at the invitation of Chris Scolese, Deputy Center Director and Diversity Champion to discuss religious freedom in the workplace. "Many of us get our vision of justice, equity and compassion from our religious traditions. This understanding shapes who we are and how we act in the workplace," said Brenda Dingwall coordinator of the event and Special Emphasis Program Manager for Minorities and People with Disabilities. While many may have walked into the forum believing that invited speakers would be waxing poetic about their own religions, what actually took place was a wonderful lecture about respect and compassion. Invited panelists included The Right Reverend James J. Shand, Bishop, Episcopal Diocese of Easton, MD; Rabbi Richard White, Beth Israel Congregation, Salisbury, MD; Pastor Harvey David, Shiloh Baptist Church, Pokomoke, MD; Ram Dujari - Hindu Temple of the Eastern Shore; Imad-ad-Dean Ahmad, President, Minaret of Freedom Institute, Bethesda, MD; and Mr. Ron Toland – Atheist.

The Right Reverend James J. Shand, Bishop, Episcopal Diocese of Easton, MD, spoke about his first experience working in a diverse environment at an upscale department store where it was understood that somehow despite their differences, everyone had to learn how to deal with each other to produce the best product possible. He believes this is only possible through compassion and respect. He said, "If we as human beings do not have compassion for one another, this world is going to go down the tubes real fast." "Every person in this room has dignity, and regardless of where we are on the religious spectrum, if I don't respect you as a human being, then I don't deserve to be alive."

Rabbi Richard White, Beth Israel Congregation, Salisbury, MD, spoke about his experiences with diversity in the U.S. Government. The Rabbi related to the audience how you learned to respect diversity as a soldier where the motto "Mission First, People Always" was drummed into your head. He said "it hurts the mission if people are uncomfortable doing a job that they are good at because they feel uncomfortable due to slights, jokes, or even passive aggressive actions. We must learn to be more sensitive. We must be careful of phrases that could be common culturally but are quite derogatory."

Ram Dujari of the Hindu Temple of the Eastern Shore, shared with the audience some teachings of Hinduism through a science related anecdote. He said diamonds, graphite and charcoal are all

Carbon, only different due to the special arrangement of their molecules. When he sees them in their physical arrangements they appear very different, however when he sees them in their scientific arrangements they appear very similar. Mr. Dujari wanted the group to remember that "things are similar if you are looking for similarities and different if you are looking for differences." Mr. Dujari believes the key to working together is to learn to see the similarities in all of us.

Imad-ad-Dean Ahmad, President, Minaret of Freedom Institute, Bethesda, MD said that there is nothing wrong in believing your religion is the best, there is something wrong in trying to impose your judgment between another person and the Creator. He said "God put people on this earth to do a certain job, and since this is the job of all people, all people are due a certain amount of dignity and respect.

The final speaker, Ron Toland, an Atheist ended the forum by asking the group to consider learning not how to work around or tolerate people's differences but how to celebrate them. He said, "Race and religion are not things people have to overcome or get over in order to work together in the workplace, but they are positive things and good things that we need to have, and must learn to see as positive if we are to have a compassionate work place."

Pastor Harvey David of Shiloh Baptist Church, Pokomoke, MD believes that NASA is right on target in promoting this type of communication. ■



Swift's Observations of a Black hole on TV

The story reported in May of Swift's observations of a Black hole generated 25 stories on local stations; most of them fed from FOX News Edge feed service pool. Neilson estimated audience is about 2 million viewers.

NOAA-N

The NOAA-N successfully launched on Friday May 20th, generating about 40 stories related to the NOAA-N launch.

NASA Explorer Schools

NASA's announcement of the 50 new Explorer Schools, generated about 25 stories. Cities where local TV reported on the NES accouchement included: Baltimore, MD, Los Angeles, Houston, Little Rock-Pine Bluff, AR, Sioux Falls-Mitchell, SD, Rockford, IL, Sioux City, IA, Denver, CO, Sacramento-Stockton-Modesto, CA

NASA Appears in Weatherwise Magazine

Looking to learn more about the weather? Turn to the pages of Weatherwise magazine, where NASA research meteorologist Jeff Halverson explains some of the most recent outstanding meteorological events... without the jargon.

See below for a few intriguing findings from NASA climatologists and NASA-led Earth science research studies that appeared in the May/June 2005 issue of Weatherwise magazine. Also be sure to check out Weatherwise at the Goddard Library or on-line at www.weatherwise.org.

Climatic Bulges - Pg. 12

University of Texas researchers using data from eight different NASA satellites discover that changes in the water distribution on Earth over the past few decades might be altering the shape of the world and could be tied to climate-related events like El Nino.

Lightning Protects - Pg. 12

Goddard scientist James Green and colleagues settle the long-standing debate over the cause of the reduced radiation zone around the world known as the Van Allen belt: lightning. They found that radio waves sparked by lightning interact with particles in the radiation, taking away some of their energy and setting them on a new course, creating a safe haven for orbiting satellites.

Still Simmering - Pg. 14

NASA climatologist James Hansen reports 2004 to be the fourth warmest year in over a century and says weather and climatic conditions might make 2005 the warmest year yet.

Upcoming Highlights

Wallops Kicks Off 60th Anniversary Celebration

Several events are scheduled over the upcoming months to mark the 60th Anniversary of the Wallops Flight Facility.

A video compilation of project photos taken over the years, past and current, was unveiled to a gathering of Wallops employees on May 9. The video, created by Rebecca Hudson, a Salisbury University co-op student in the Public Affairs Office, will also be featured at Perdue Stadium, Salisbury, MD, on NASA night, July 2.

"Like those adventurers that established Wallops in the Spring of 1945 and launched the first rocket on June 27th of that year, we continue to show our customers the ability to react quickly to meet their research needs." said Dr. John Campbell, Wallops senior manager.

Music and Drama club (MAD)

The Music and Drama club (MAD) invites you to audition for their production of State Fair by Rodgers and Hammerstein. Auditions are being held on July 18, 19, and 20th (you need only attend one). Call backs are on July 21st. All auditions will be held in the Building 3 Auditorium at 6:30 pm. Pick up audition packets from the show's producer Gerry Daelemans in Building 23 Room E129 during business hours. Non-badged auditioners must make their own arrangements to pick up packets.

GEWA Special Events for Summer 2005

- Saturday July 16 is NASA Day at King's Dominion
- Friday July 22nd is the NASA Brille (new Jersey) fishing trip
- Sunday August 21st is NASA Day at Six Flags-Largo

Free warm weather lunchtime concerts, guest chefs, and special sales and shows throughout the year. Watch for ads in Dateline, The Goddard View and the Marquee Bulletin Board and the GEWA Website and Newsletter. If you have ideas for special events activity or want to volunteer, please contact Kenny Dearth/Special Events Chairperson at 301-286-3003 or email at kdearthpop500.gsfc.nasa.gov. Please visit <http://gewa.nasa.gov/SpecEvents> for more information

DEEP SPACE TEST BED BALLOON FLIGHT

In May the engineering test flight of NASA's new Deep Space Test Bed science gondola carried, beneath a lab attached test balloon, four experiments designed and built by students at Auburn University, the University of Alabama in Huntsville, Montana State University and Penn State University. The project is managed by Marshall Center's space science group.

2005 Virginia Space Flight Camp Academy

If you know a child that is interested in how rockets and spaceships fly, aerodynamics, micro gravity, astronaut training, extraterrestrial travel and the role of radar, weather and robotics, Virginia Space Flight Academy at the Eastern Shore of Virginia is the place for them to be, this summer!

The Virginia Space Flight Academy has begun accepting registrations for 11-15 year old students to experience the fun and excitement of weeklong residential programs. Academy camps are conducted at NASA Wallops Flight Facility on Virginia's Eastern Shore near Chincoteague Island, VA. The Academy is supported by the Eastern Shore Regional Partnership, the Virginia Commercial Space Flight Authority, NASA, NOAA and the U.S. Navy.

At the Space Flight Academy camps, young space enthusiasts are involved in a host of exciting, hands-on and minds-on experiences. In addition to building and launching their own model rockets, young space explorers engineer and conduct a simulated rocket launch from an actual NASA mission control room while seated behind computer consoles with individual headsets. Returning to the program this year, are activities which make use of robotics kits and flight simulators.

Virginia Space Flight Academy offers students, ages 11-15, a wonderful and truly unique opportunity to enjoy a week-long, fun filled summer camp experience, combined with educational field trips to operational NASA, NOAA and US Navy facilities. Typical trips are visits to NASA's Vehicle Assembly Building, Range Control Center, Radar Sites, Launch Pads, Aircraft Hangers, the NOAA Command and Data Acquisition Station and the U.S. Navy Aegis Training Center. During these outings, government personnel explain the functions of the facilities and educational background required to be employed there, thus giving students insight into career development opportunities. Robert Marshall, Executive Director stated "I know of no other camp in the United States that has the capability to visit as many actual operational facilities!" Another unique aspect of our program is it's small size. This past summer 7 one week camps were conducted with enrollment limited to the first 28 paid students. Geared primarily for students from the Mid-Atlantic Region of the US, this past summer's camps included students from Massachusetts, Rhode Island, Wisconsin, New Jersey, Florida, Texas, New Hampshire, and Washington State!

Eight camps, for 11-15 year old coed students, will be held beginning June 19 thru August 14, 2005. Each camp begins on Sunday afternoon and ends on Friday at 2 p.m. Tuition for each camp is \$595, which includes double occupancy housing, meals, transportation while at camp, a workbook, T-shirt, and all instructional materials. Spaces are filling up quickly so call the Space Academy now to get a spot!

More information on Space Academy 2005 offerings can be had by telephoning the Academy toll free at 866-757-7223, e-mail at spaceacademy@intercom.net or visit the web site at www.VaSpaceFlightAcademy.org for additional information and online registration.

Are You Compliant?

If you're developing new technology for NASA, the Agency's "New Technology Reporting (NTR)" requirements may pertain to your work. The information below is aimed at helping you determine whether you need to file specific information with the Office of Technology Transfer.

What is an NTR?

An NTR is a detailed disclosure of individual technologies or innovations.

What qualifies as a new technology?

A new technology is broadly defined as any invention, discovery, improvement, or innovation that was either conceived or first reduced to practice in the performance of NASA work. New technologies may occur at the system, subsystem, or component level. New technologies include new or improved techniques, methods, systems, and processes as well as new or improved products, devices, machines, materials, chemical compositions, apparatuses, articles, fixtures, tools, and software.

Why should I submit an NTR?

The NTR allows the Office of Technology Transfer to begin looking for commercial applications for the technology and to protect it as intellectual property. Publicly discussing your invention can prevent NASA from securing patent protection and reaping the benefits that can accompany intellectual property protection, so it is important that you submit the NTR first and then check with us before presenting or announcing your innovation. Also, an NTR is required for you to be eligible for a Space Act Award, the Invention of the Year Awards, and other recognition. (See the "Awards" section of <http://techtransfer.gsfc.nasa.gov>). Finally, reporting technologies is required of NASA employees and contractors (see NASA Policy Directive 2091.A).

When do I submit an NTR?

An NTR should be submitted as soon as you recognize you have a new invention. This may occur in the middle of a project while R&D is still ongoing, or it may be recognized at the end during normal project reporting. The process of writing programmatic and mission progress reports also may assist you in recognizing and describing a new innovation. The earlier your invention is reported to the Office of Technology Transfer, the more effectively and efficiently we can help you find successful commercial partners and market applications. Most importantly, you should submit the NTR before making any public disclosure of the innovation.

How do I submit an NTR?

Use the online system eNTRe (<http://entre.nasa.gov>) to report new technology. The eNTRe system requires you to describe what motivated the development, the benefits of the technology, and possible commercial applications.

For more information, go to:
<http://techtransfer.gsfc.nasa.gov/resources-ttprocess1.html>.

In Memory of...



William (Bill) Schiavone, the EOS Deputy Program Manager for Resources passed away on April 16, 2005, from complications of a stroke. He was 57 years old.

Bill was a 1969 graduate of the University of Maryland. He came to the Goddard Space Flight Center in 1970 as an Accountant/Financial Analyst. Early in his career, Bill contributed to the success of ISEE A/B, ISEE-C, Hubble Space Telescope, UARS; he also was assigned to the Office of the Comptroller and the Flight Programs and Projects Directorate at Goddard. In 1990, Bill moved to the EOS PM Project as the Deputy Project Manager for Resources; then to the EOS Program Office. His leadership in finance and program control was instrumental in the success of the EOS Missions.

A memorial service was held in Denton, Maryland on April 23, during which he was eulogized by George Morrow, Richard Austin, Michael Comberiate and members of his family. Bill leaves behind his wife, Debbie, two sons, William II and Paul and 4 grandchildren. Bill enjoyed his vegetable garden, raising chickens and most of all spending time with his family.

Bill received numerous awards including the NASA Exceptional Service Medal in 1979. Bill's wisdom, guidance, dedication and fellowship will be greatly missed by the EOS Community and the Goddard Space Flight Center.

Employee Spotlight...

**Chi H. Kang**

Senior Interaction Designer with INFONETIC, is responsible for the visual direction and layout of Goddard View. It was his idea to use the name Goddard View for the bi-weekly newsletter. Mr. Kang, a graduate of the Rhode Island School of Design's Industrial Design Program, has

worked on many web development and creative initiatives for government, non-profit and fortune 500 companies.

**Alana Little**, a new

edition to the TISB team, is the new Editor of Goddard View.

Ms. Little is a graduate of the University of Baltimore's Masters Publication Design Program and has worked in the book publishing and technical editing fields for both public and private industry.

Her goals include making Goddard View a more inclusive, cohesive, and informative publication. You can email Alana at alittle@pop100.gsfc.nasa.gov or phone at 301.286.0691.



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GoddardView Info...

Goddard View is an official publication of the Goddard Space Flight Center. It is published bi-weekly by the Office of Public Affairs in the interest of Goddard employees, contractors, and retirees. Its circulation is approximately 11,500.

Managing Editor - Trusilla Steele

Editor - Alana Little

Deadlines: News items and brief announcements for publication in the Goddard View must be received by noon of the 1st and 3rd Wednesday of the month. You may submit contributions to the editor via e-mail at alittle@pop100@gsfc.nasa.gov. Ideas for new stories are welcome but will be published as space allows. All submissions are subject to editing.