

Dr. Diaz Addresses Class at 2004 Commencement Ceremony

Photo by: Thai Nguyen, for Capitol College



Dr. William Troxler, former Capitol College president and Dr. Al Diaz.

“Many of you have had to balance work and family commitments with your studies. You have gone the extra mile to advance your education and better yourself. You have earned this singular moment and I’d like each and every one of the families, friends, mentors and teachers, if you would stand up and applaud this group.” These were the opening remarks given by Dr. Al Diaz at the 2004 Commencement exercises on the campus of Capitol College, Laurel, Maryland, May 15.

Dr. Diaz was the keynote speaker during an event in which an over

flow crowd watched as 266 graduates received their degree of completion. Awarded degrees ranged from an Associate to Doctorate, with 72 percent of the class receiving Masters Degrees. Before his address, Goddard’s Center Director was awarded a Doctor of Science, Honoris Causa.

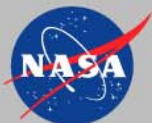
“Capitol Radio Engineering Institute opened its doors in 1927 at a time when vacuum tube theory and technology was revolutionizing telecommunications,” said Dr. Diaz. “This was barely a year after Dr. Robert Goddard launched the world’s first liquid fueled rocket from the field at his Aunt Em’s farm in Worcester, Massachusetts. He had no way of knowing, nor did the founders of what would become Capitol College, that three quarters of a century later the trajectories they initiated would cross in Greenbelt, Maryland.”

Dr. Diaz continued, “At Goddard, we recognize that it is people that make the difference....energetic, creative people that are brought together in one place, given the opportunity to do exciting work, provided the resources to be successful and immersed in an environment that is compatible with their values.....that achieve the technological marvels of our time. And it is a continuing supply of that kind of people that is threatened in the future. And so, heretofore, unconsidered fertile grounds need to be tilled, fertilized and seeded if we are to reap the harvest we desire. That is what has brought us to Capitol.”

Continued on page 13

Table of Contents

Capitol College	Page 1
Safety Assurance Report ..	Page 2
Tsunamis Sweep	Page 3
In the Safety Corner	Page 5
Venus Transit	Page 6
Get Ready for e-Payroll	Page 7
Sign Up for EE	Page 8
Mars Dust	Page 9
Safety Alert	Page 10
AURA Set to Launch	Page 10
Employee Spotlight	Page 11
Sun Walk at Local Park ..	Page 12
Gay and Lesbian Month ..	Page 14
Celebrate Goddard!	Page 14
FEB Recipients	Page 15
Cirrus Cloud Study	Page 16
India Filmmaker at GSFC	Page 17
WAC	Page 19
Presidential Award	Page 20
Visitors of Goddard	Page 21
IT Security Initiatives ...	Page 23
Local Educator Astronaut	Page 24
New Explorer Schools	Page 25
Goddard In the News	Page 26
GEWA Activities	Page 27
Announcements	Page 28
Events	Page 29



NASA’s Mission:

- *To understand and protect our home planet
- *To explore the Universe and search for life
- *To inspire the next generation of explorers as only NASA can

For further detail of the NASA mission, go to:
<http://www.nasa.gov/bios/vision.html>

New NASA Safety Assurance Organization Reports on Initial Assessments

By Keith Henry, LRC

The NASA Engineering and Safety Center (NESC), created in the aftermath of the Space Shuttle Columbia accident to serve as an independent technical resource for NASA managers and employees, reported May 12 on its initial assessments.

Results of the Center's four "Pathfinder" studies were reported to senior NASA leadership from around the country at a meeting at NASA Headquarters. The reporting approach — proactively sharing lessons learned — was modeled after a similar method used by the U.S. Navy Board of Inspection and Survey.

The NESC was created in November 2003 to improve safety by performing in-depth independent engineering assessments, testing, analyses and evaluation to uncover technical vulnerabilities and to recommend appropriate preventative and corrective actions for problems, trends or concerns within NASA's programs, projects and institutions.

"I feel very good about what we've accomplished in our first six months," said Ralph Roe, NESC director, based at NASA Langley Research Center (LRC), Hampton, Va. "We have a talented core of people working within NESC and an outstanding group of people matrixed to NESC that we can call upon when needed. We have positive feedback from the partnerships we've begun with industry and academia. We've completed our first four technical assessments; we're working on several new major activities, and requests for our services keep coming in," he added.

The initial assessments were related to four research projects: Cloud-Aerosol LIDAR and Infrared Pathfinder Satellite Observation (CALIPSO) spacecraft, an earth science satellite set to launch in 2005; X-43A, a hypersonic research vehicle that made news with a successful flight in March; the Space Shuttle orbiter rudder/speed brake system; and the Mars Exploration Rovers, now exploring the surface of Mars.



Photo by: NASA/Bill Ingalls

Ralph Roe, director of the NESC holds a planetary gear from the Shuttle Orbiter rudder/speed brake actuator as he discusses the NESC Pathfinder study that confirmed the effectiveness of the grease on gears in the actuator(s)

While the NESC's current focus is on a successful Space Shuttle return to flight and the International Space Station, it is involved in other activities across NASA. For example, NESC is providing independent expertise for the Cassini Saturn Orbit Insertion critical events readiness review.

The initial study topics were picked because of their importance, their manageable size and because of their potential to teach the NESC how best to organize itself and conduct independent analyses of critical technical issues.

In the case of CALIPSO, a joint science mission that includes NASA and the French space agency, a concern about possible leaks of the spacecraft's highly-reactive fuel from joints in the fuel lines during ground processing led to multiple recommendations to minimize risk to personnel, the mission and the environment.

The record-breaking hypersonic X-43A did not fly until a dissenting opinion by one X-43A team member was properly addressed. The employee contacted the NESC with a concern that the research vehicle's aerodynamic characteristics could potentially lead to a loss of vehicle control, resulting in failure to achieve mission objectives. The NESC worked in conjunction with the X-43A project to ensure that the employee's concern was properly addressed.

During renewal of hardware in a Space Shuttle orbiter rudder/speed brake system, a concern was raised about the effectiveness of grease in the gear set of the replacement hardware that had been retrieved from long-term storage. NESC conducted extensive tests and analyses to determine that the grease is still effective. A lesson learned was that programs should periodically review hardware components to ensure that qualification and certification limits are not exceeded.

Tsunamis Sweep Through the Solar Atmosphere

What Scientists Can Learn by Watching Their Wakes

By Rachel A. Weintraub

Imagine being at a concert where someone on stage sets off a firecracker. Not everyone would hear the 'pop' of the firecracker at the same time - the sound travels in a wave to those in the back, right? Now imagine that you could see the sound travel - and be able to determine how many people are at the show, where they're standing in clumps, and where the T-shirt vendors are - just by seeing that sound wave.

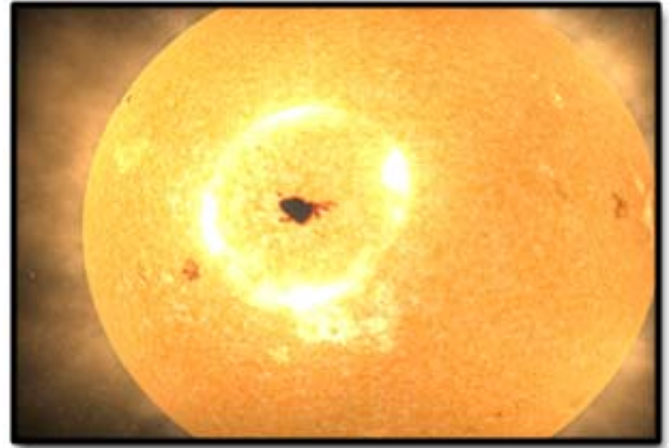
Scientists like Dr. Meredith Wills-Davey are doing just that on the Sun thanks to 'solar tsunamis,' huge distributive waves of energy triggered by the wildly powerful solar flares and coronal mass ejections constantly occurring in the solar atmosphere, or corona. These are sound waves, yet because they're occurring on the gaseous Sun, satellites are able to see them pass through regions of varying densities, structures and magnetic fields. So far the waves observed have varied in duration from 10 minutes to an hour and travel at a speeding pace of about 300 km/second (186 miles/second). To give some perspective, asteroids or comets that collide with the Moon travel at a significantly slower rate of 20 km/second (12 mps) and the space shuttle travels at about 7 km/second (4.3 mps).

Coronalseismology - the Next Step?

"Just as geologists can learn about material in the ground by studying the waves generated by earthquakes, solar physicists can use solar tsunamis to learn more about the structure of the solar corona," said Dr. Wills-Davey, a post-doctoral researcher in the Southwest Research Institute (SwRI) in Boulder, Colo. "You expect the sound wave to behave a certain way depending on what it travels through. Sound waves act as probes to tell you about the center of the Sun."

When the wave moves through the corona, it vaguely resembles a ripple sent through a pond after having a pebble thrown in. Anything from temperature fluctuations to varying regions of density can cause the tsunami waves to slow down, speed up or move in different directions. Depending on the data available, scientists can also spot changes in the tsunami wake from satellite image to image.

"These pulse waves serve as 'sonar pulses' that will let us probe the local conditions in up to 30 percent of the Sun's atmosphere

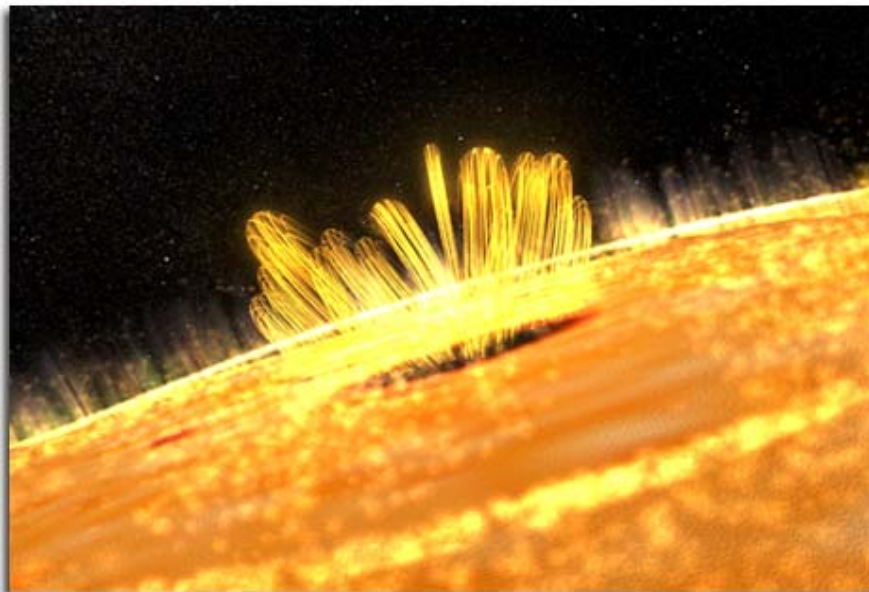


at once," said Dr. Craig DeForest, a senior research scientist at SwRI. "In addition, they help us study the unknown processes at play in solar flares, the largest explosions in our solar system."

Influential Explosions with Many Unknowns

The explosive solar flares can release as much energy as a billion one-megaton nuclear bombs. They occur in the solar atmosphere and result in the heating of solar gas and the acceleration of particles to nearly the speed of light. Coronal Mass Ejections, or 'CMEs,' are often associated with flares but release plasma into space -

sometimes toward Earth - rather than being contained within the corona. Both events seem to be caused by magnetic reconnection, the twisting and snapping of magnetic field lines on the Sun. When these fields snap from the buildup of magnetic energy, the resulting explosions emit radiation ranging from radio waves to X-rays.



Coronal mass ejection.

Scientists don't understand a lot of the processes involved in solar flares and CMEs, including the fact that flares and CMEs occur within seconds of each other, leading to mysteries regarding which comes first. Also, these flares and CMEs are often so bright that many details referring to their origins are obscured in satellite images, if they're able to catch them at all. In other words, any new insights into these solar processes

Continued on page 4

Assessments Report (cont'd)

Prior to the two Mars Exploration Rover landings on Mars in January, the NESC participated in two program reviews. One review dealt with the very human challenge of supporting round-the-clock staffing for a mission to Mars, where the Martian day is 40 minutes longer than an Earth day. The second review looked at entry, descent and landing data from the first rover landing as a guide to fine-tuning the entry, descent and landing of the second rover. While both landings were highly successful, the review revealed that current spacecraft instrumentation was not designed to adequately record the aerodynamic environment encountered during descent.

Summaries of the four Pathfinder reports, a video clip, publication quality images and additional information about NESC are available on the Internet at: <http://nesc.nasa.gov>

First NESC Awards Presented to Goddard, Langley, Marshall, Glenn Employees

The first NASA Engineering and Safety Center (NESC) awards were presented to NASA employees representing four NASA Centers at the NESC Leadership Briefing May 12.

Four award categories have been established to recognize individual employees for "outstanding contributions to NESC's sponsored activities and to encourage critical examination of engineering problems."

The NESC Leadership Award was presented to Luat T. Nguyen, NASA Langley, for exceptional leadership in responding to a dissenting opinion regarding the modified Pegasus/X-43A launch vehicle aerodynamics. Also presented the award was **Dr. Michael G. Ryschkewitsch**, NASA Goddard, for exceptional leadership in promoting an environment in which technical concerns are brought forward and appropriately addressed.

The NESC Engineering Excellence Award was presented to Timothy R. Jett, NASA Marshall, for extraordinary leadership that contributed to engineering excellence in support of the Rudder and Speed Brake Independent Assessment Team.

The NESC Director's Award was presented to Richard M. Wood, NASA Langley, in recognition of his personal commitment to advocating further assessment of the aerodynamic risks associated with the flight of the modified Pegasus/X-43A launch vehicle. Also honored was Erwin V. Zaretsky, NASA Glenn, in recognition of his exemplary contributions and personal leadership in advocating further inspection and testing of the Space Shuttle Orbiter Rudder and Speed Brake actuators.

The fourth award category, the NESC Group Achievement Award, was not presented. ■

How to Report Technical Concerns

The NESC provides an independent line of communication to ensure that all NASA employees have an alternate path to report technical concerns and to encourage consideration of all points of view on critical technical issues.

All general questions and requests for NESC technical reviews should be sent to NESC@nasa.gov. Anonymous technical requests may be made by mailing them to NESC, NASA Langley Research Center, Mail Stop 118, Hampton, VA 23681.

Each NASA field center and Headquarters has a local NESC representative who serves as a point of contact for center-based issues related to the NESC. Find information for your local contact through the NASA X.500 directory.

Center contacts are NASA Ames, Michael S. Freeman; NASA Dryden, Michael W. Kehoe; NASA Glenn, Derrick J. Cheston; NASA Goddard, **Michael Hagopian**; NASA Headquarters, John E. Tinsley; Jet Propulsion Laboratory, Matthew R. Landano; NASA Johnson, David A. Hamilton; NASA Kennedy, Timmy R. Wilson; NASA Langley, Michael G. Gilbert; NASA Marshall, Danny Johnston; and NASA Stennis, T. Randy Galloway.

Tsunamis Sweep (cont'd)

will drastically improve our understanding of these powerful events and help to bolster our efforts to protect satellites, power grids and astronauts from their dangerous output.

Spotting Tsunamis Under the Radar

It's only recently that satellites have improved in clarity and frequency of output to make observations of these tsunami waves possible. The SOHO spacecraft, in operation since 1995, originally spotted them, but because the imaging instrument only sends back pictures every 15 minutes, only the largest waves are spotted. The TRACE spacecraft, launched in 1998, provides a better close-up view of the region where the flare forms and takes pictures about every one to two minutes in varying wavelengths. But it also takes a dedicated scientist to track these waves - and decipher what can be gained with that information. This last element explains why research of these tsunamis has been rather slow, despite the now vast archives from TRACE.

Wills-Davey expects that there are many more forms of these tsunamis propagating on the Sun that just haven't been seen yet. She's working on writing computer programs to better identify these waves - to essentially recognize and track them from the hours of data acquired from multiple spacecraft observing the Sun. New spacecraft like the 2006 Solar-B (<http://stp.gsfc.nasa.gov/missions/solar-b/solar-b.htm>) and 2008 (<http://sdo.gsfc.nasa.gov/>). Solar Dynamics Observatory (SDO) missions are also expected to improve observations of these solar tsunamis. ■

In the Safety Corner

Driving Safety Week Focus on Distracted Driving

June is National Safety Month, sponsored by the National Safety Council and the Safety Council of Maryland. The month kicks off with Driving Safety Week from June 1-7. According to the National Highway Traffic Safety Administration, some form of driver distraction is a factor in 20 to 30 percent of all automobile crashes. Overall, more than 43,000 people died in motor vehicle crashes in 2002.

The Safety Council of Maryland reminds all of us that any shift in focus while driving, from turning your radio to glancing away from the road, increases the chance of a crash. Motor vehicle crashes are preventable.

The Safety Council of Maryland recommends following these steps to protect you and your family against the dangers of distracted driving:

- It only takes a second for an accident to happen. Stay committed to paying attention behind the wheel.
- Avoid slowing down to 'gawk' at a crash or other roadside activity.
- Don't reach behind you, pick things up off the floor, open the glove compartment, clean the inside windows, or perform personal grooming while driving.
- Don't drive if you're tired. Don't daydream. Share the drive with another driver when on a long trip.
- Don't talk on your cell phone while driving. Wait until you get to your destination, or pull over to the side of the road before beginning a cell phone conversation.

If you must use your cell phone, use it safely:

- Avoid long social calls and distracting or confrontational conversations.
- Position your phone within easy reach.
- Don't answer or use your phone when driving in hazardous conditions.
- Always stay aware of what is going on around you.

For additional information, see www.nsc.org.

Crash-Free June

The theme of this year's National Safety Month is "Crash-Free June." The focus of "Crash-Free June" is to draw attention to specific types of behaviors that cause motor vehicle accidents.

18.3 million motor vehicle crashes were reported in 2002*. These crashes resulted in 2.3 million injuries and 44,000 deaths—or about 120 deaths per day.

It is estimated that 90% of all motor vehicle crashes—about 16.4 million of those listed above—are attributable, at least in part, to driver behaviors.

The key behaviors covered are:

• Speeding



Speeding is a contributing factor in crashes that kill approximately 12,000 people each year. Speeding reduces the time a driver has to avoid a crash and increases the likelihood and severity of the crash.

• Aggressive driving

Operating a vehicle in a way that endangers other people and property—such as improper passing, weaving in and out of traffic, or following too closely—compromises the safety of both the driver and everyone around them.

• Distracted driving



It only takes a second for a crash to happen. Distractions occur when drivers concentrate on something other than operating their vehicles—such as engaging in cell phone conversations.

• Drinking

Last year, 17,401 people died in alcohol-related crashes. Alcohol was a contributing factor in 40% of all motor vehicle fatalities last year. Alcohol slows reaction time, decreases awareness, and impairs judgment.

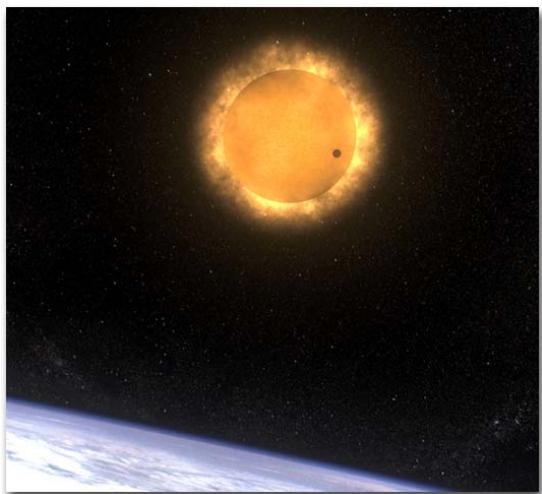
• Drowsy driving



Just like drugs or alcohol, sleepiness slows reaction time, decreases awareness, and impairs judgment. Just like drugs or alcohol, it can be fatal when driving.

• Failure to yield the right of way

One of the most common driver errors, failure to yield the right-of-way is not just a breach of driver etiquette—it's breaking the law.



Artist concept of Venus passing the Sun.

No One Alive Has Seen This, But You Can

By Bill Steigerwald

"There will be no other till the twenty-first century of our era has dawned upon the Earth and the June flowers are blooming in 2004. What will be the state of science ... God only knows."
1882 — William Harkness, U.S. Naval Observatory

NASA invites you to view a rare celestial event, one not seen by any person now alive. On June 8, the planet Venus will appear to cross in front of the Sun as seen from Earth. The last "Venus transit" occurred more than a century ago, in 1882, and was used to compute the distance from the Earth to the Sun. Scientists with NASA's Kepler mission hope to discover Earth-like planets outside our solar system by searching for transits of other stars by planets that might be orbiting them.

NASA has a partnership with observatories and museums to help people observe the event safely. People must take special precautions to safely observe the Sun directly. More information, including local events and viewing times, is available at: <http://sunearthday.nasa.gov>

Alternatively, people can safely observe the event by viewing it indirectly over the internet, with images from solar observatories and satellites. For internet viewing options, including a live webcast from Athens, Greece, made in partnership with the Exploratorium in San Francisco, Calif., refer to: http://sunearth.gsfc.nasa.gov/sunearthday/2004/vt_observe_2004.htm

The Venus transit will be visible over about 75 percent of the Earth, and will be nearing its end at sunrise over central and eastern North America. The event will be finished by the time the Sun rises over the West Coast of North America (but viewers in Alaska can see the beginning of the transit and, for Northern Alaskans, the entire transit, because the Sun does not go below the horizon). A map of the transit visibility is at: <http://sunearth.gsfc.nasa.gov/eclipse/transit/TV2004/TV2004-Map1b.GIF>

Transit times for cities worldwide are available at: <http://sunearth.gsfc.nasa.gov/eclipse/transit/TV2004.html>

"People using a filter approved for safe solar viewing can expect to see a small black dot, about 1/30 the size of the solar disk, very slowly moving across the Sun," said **Fred Espenak**, an eclipse expert at Goddard. Espenak will travel to Greece to observe the entire transit.

If people miss the June 8 Venus transit, they will have another chance in 2012 (June 6). After that, there will not be another Venus transit until 2117 (December 11).

During the 19th century, Venus transits were essential for astronomers to fathom the scale of the heavens, because they were used to give a relatively accurate distance from the Earth to the Sun. Once that distance was known accurately, astronomers could determine the size of our solar system, and calculate the distances to nearby stars by measuring how much they appeared to shift against remote background stars as the Earth progressed in its orbit around the Sun.

So critical was this measurement that, beginning in 1761, leading nations sent expeditions to remote corners of the globe to time exactly when Venus appeared to begin its transit of the Sun. The precise timing of the transit depended on location because different places on the globe saw the event from different angles. The times were compared and the distance to the Sun calculated using the known distances between expedition locations on the Earth and trigonometry. Educators and students may do the calculations by following an activity on the website or on the half-hour NASA Connect TV program.

The transit phenomenon has relevance to the future of astronomy as well. There is evidence for more than 100 extrasolar planets (planets outside our solar system) around other nearby stars. However, current techniques can only detect large planets, gas giants like Jupiter. But a star might have a planet that appears to pass in front of it by chance alignment with the Earth, and planets similar in size to the Earth could be detected if they transit their parent star.

NASA's Kepler mission, scheduled for launch in October 2007, will allow astronomers to find smaller, presumably terrestrial extrasolar planets by looking for tiny dips in the brightness of a star when a planet crosses in front of it. Periodic brightness dips will signal the presence of a planet in orbit around the star, even if the planet itself is not directly visible. Kepler will observe about 100,000 stars in a patch of sky in the direction of the constellation Cygnus for four years, making brightness measurements every 15 minutes, in hopes of catching elusive transits. The Kepler mission is expected to detect 50 to 60 extrasolar planets with a similar distance from their parent stars as the Earth is from the Sun. For more about the Kepler mission, refer to: <http://www.kepler.arc.nasa.gov> ■

e-Payroll Is Appearing on the Horizon

By Hunter Keay



What is e-Payroll?

NASA has partnered with Department of the Interior's (DOI) National Business Center (NBC) to provide the Agency with an integrated personnel/payroll system, and has initiated an Agency-wide e-Payroll Project to work with NBC to transition from NASA's current personnel and payroll system to the DOI system. The transition is scheduled to take place early August 2004.

Why is NASA Implementing e-Payroll?

The President's February 2002 budget submission to Congress outlined a management agenda for making government more focused on citizens and results, which includes expanding Electronic Government or e-Government.

The e-Government Strategy includes several high-payoff, government-wide initiatives to integrate agency operations and information technology investments. One of these initiatives is the e-Payroll Project. It involves selecting the 4 biggest payroll providers from among the current 22 provider agencies and moving all agencies to the 4 providers for cross servicing.

The four provider agencies are:

- Department of Defense, Defense Finance and Accounting Service (DFAS)
- General Services Administration (GSA)
- Department of Agriculture, National Finance Center (NFC)
- Department of Interior, National Business Center (NBC)

NASA selected the Department of Interior, (NBC), as its provider due to its advanced capabilities and anticipated ease of migration from the NASA Personnel and Payroll System (NPPS). Unlike other providers, DOI offers an excellent personnel system that is integrated with its payroll system, so NASA will be replacing NPPS in its entirety.

What Are The Benefits?

NASA believes this new integrated system will provide improved efficiencies to not only the Agency, but the government community at large. The ability to consolidate and standardize payroll data across the Federal government will establish a standard, integrated HR/Payroll architecture that will:

- ✚ Eliminate redundancies in payroll processing
- ✚ Reduce costs (estimated \$995 million in savings)
- ✚ Develop a solid foundation for achieving visions outlined in President's e-Government strategy

How Does e-Payroll Impact You?

Transition to the DOI system will impact mainly OHR and Payroll personnel who have to change systems, processes, and even job roles as a result of this implementation; however there will be some aspects that will affect NASA employees:

- ✚ Leave & Earnings Statement will be in DOI's format and mailed to your home or you can view it on-line at www.employeeexpress.com
- ✚ Mandatory use of Employee Express to view/change payroll and personnel data.
- ✚ Online Completion of SF52/50 Actions by Managers/ Administrative Staff

Employment verifications should be initiated by the employee directly through the TALX Work Number website, (www.worknumber.com) or via Employee Express

Tight Integration of FPPS with WebTADS, NASA's time and attendance tool.

Employees will receive two W2s the first year, one from FPPS and one from NPPS

When Will e-Payroll Changes Take Effect?

1. Core FPPS system and mandatory use of Employee Express is expected to be implemented at GSFC on August 08, 2004
2. After January 2005, the automated SF52 process will be incrementally rolled out to Managers and their Support Staff within the Directorates.

How Do I Find Out More?

You can receive more information about the e-Payroll rollout at GSFC in the following ways:

Please email all questions and/or comments to the e-Payroll Project Team at epayroll_smes@listserv.gsfc.nasa.gov

Visit the GSFC e-Payroll website at <http://ifmp.gsfc.nasa.gov>, then Click on "e-Payroll Website"

Contact Felicia M. White, GSFC e-Payroll Change Manager, at ext. 4-6964 ■

Have You Signed up for Employee Express Yet?

By Hunter Keay

What is Employee Express?

Employee Express (EE) is a user-friendly automated system that gives you direct control over key payroll and personnel information without using a form or visiting your personnel office.

It allows you to view or make changes to:

- Federal Employees Health Benefits (FEHB)*
- Thrift Savings Plan (TSP)
- Direct Deposit of Net Paycheck
- Direct Deposit of Allotments
- Federal/State Tax Withholdings
- Savings Bonds
- Home/W-2 Mailing Address
- Your Personal Identification Number (PIN)
- Current and 2 previous Statements of Earnings and Leave

NOTE: (During "open season" only)

What is the link between Employee Express and e-Payroll?

Up to now, NASA employees have had the option of choosing whether to use Employee Express to view and/or change their payroll and personnel data or submit changes at the GSFC Personnel office using a paper form.

As part of its e-Payroll implementation to standardize personnel and payroll processes, NASA has been given the responsibility of making Employee Express (EE) **mandatory for all NASA government employees except for cases of hardship**, which means that after August 08, 2004, the Personnel Office will refer employees to EE when they come to their office, if they had not tried to do their action there beforehand.

This may at first seem like a large reduction in customer service, but the reality is that performing changes outside of EE requires time-intensive manual work by both the employee and Personnel, such as delivering a hard copy slip to Personnel for manual entry. So, the use of Employee Express can actually save both the employee and Personnel significant time. **In cases of hardship or emergencies, the Personnel Office will still have the ability to make changes for employees, as a backup to EE, but not in place of it under the new process.**

How can I access the Employee Express system?

You can access Employee Express via the following ways:

- Use a touch-tone telephone and dial 478-757-3169 (from work) or 1-800-571-3453 (from home). For the hearing impaired, dial 1-888-880-0412 or

- Use a computer with Internet capability. Type in the following Internet address: <http://www.employeeexpress.gov>

What information do I need to access the system?

You will need your Social Security Number and your EE PIN

How do I obtain a PIN?

You may request a PIN via e-mail within 1 business day through the EE website www.employeeexpress.gov or by phone, 478-757-3169 (from work) or 1-800-571-3453 (from home).

What is the effective date of my action?

Once you have completed your action, a pay period notification screen will appear. This screen will state the effective date of your action and when the changes will appear on your Leave and Earnings Statement?

Why use Employee Express?

Saves time and effort. You can access EE 24 hours a day, 7 days a week. You no longer need to complete a form and submit it to your personnel office.

Empowers Employees. EE provides you with direct control over certain key payroll and personnel benefits information and changes.

Saves money. EE eliminates the need for payroll/personnel office to key in thousands of transactions.

If I have additional questions about mandatory use of Employee Express, whom do I contact?

If you have additional questions about Employee Express or need assistance (eg. lose your PIN) you can:

- Call the **OPM Help Desk, 1-478-757-3030**
Monday-Friday, 7 a.m. to 7 p.m. Eastern Standard Time.
- Contact your local Personnel or Payroll Office regarding financial and/or pay-related questions or for helping navigating through the Employee Express website.
- Visit the GSFC e-Payroll website (ifmp.gsfc.nasa.gov), "Click on e-Payroll" and take the Employee Express WBT Tutorial. ■

By using this state-of-the-art technology, YOU are taking a dynamic step into the "paperless" office of the future!

I Was Chased by An Electric Martian Dust Devil

By Bill Steigerwald

Imagine you are the first astronaut on Mars, surveying a frozen Martian desert in all its “awesome desolation.” On the horizon, you see a whirling column of dust — a Martian dust devil. It quickly approaches, and you realize it’s a monster, 1,500 feet (500 meters) wide and more than a mile (thousands of meters) high. You rush to the safety of your pressurized rover, and as you glance back, the desert is gone, and a churning, twisting vortex blocks the Sun. It is almost on you, and in its dark heart, you see an eerie blue glow, the discharge from a 4,000-volt electric field.

Future Mars explorers might be confronted with this intimidating sight, based on the discovery of high-voltage electric fields in dust devils here on Earth. This research supports NASA’s Vision for Space Exploration by helping to understand what challenges the Martian environment presents to explorers, both robotic and eventually human.

NASA and university researchers discovered that dust devils on Earth have unexpectedly large electric fields, in excess of 4,000 volts per meter (yard), and can generate magnetic fields as well. Like detectives chasing down a suspect, the scientists attached instruments to a truck and raced across deserts in Nevada (2000) and Arizona (2001), driving through dust devils to get their measurements as part of the Martian Atmosphere and Dust in the Optical and Radio (MATADOR) activity.

Dust devils are like miniature tornadoes, and the ones on Earth are usually smaller than their Martian counterpart, only about 10 to 100 meters wide with 20- to 60-mile-per-hour (32- to 96-km/hr) winds swirling around a hot column of rising air.

“Dust devils are common on Mars, and NASA is interested in them as a possible nuisance or hazard to future human explorers,” said **Dr. William Farrell** of NASA’s Goddard Space Flight Center. “If Martian dust devils are highly electrified, as our research suggests, they might give rise to increased discharging or arcing in the low-pressure Martian atmosphere, increased dust adhesion to space suits and equipment, and interference with radio communications.” Farrell is lead author of a paper on this research published in the *Journal of Geophysical Research* April 20.

Dust particles become electrified in dust devils when they rub against each other as they are carried by the winds, transferring positive and negative electric charge in the same way you build up static electricity if you shuffle across a carpet. Scientists thought there would not be a high-voltage, large-scale electric field in dust devils because negatively charged particles would be evenly mixed with positively charged particles, so the overall electric charge in the dust devil would be in balance.

Photo Credit: University of Michigan



Artist concept of electrified Martian dust devil.

However, the team’s observations indicate that smaller particles become negatively charged, while larger particles become positively charged. Dust devil winds carry the small, negatively charged particles high into the air, while the heavier, positively charged particles remain near the base of the dust devil. This separation of charges produces the large-scale electric field, like the positive and negative terminals on a battery. Since the electrified particles are in motion, and a magnetic field is just the result of moving electric charges, the dust devil generates a magnetic field also.

If Martian dust grains have a variety of sizes and compositions, dust devils on Mars should become electrified in the same way as their particles rub against each other, according to the team. Martian dust storms, which can cover the entire planet, are also expected to be strong generators of electric fields. The team hopes to measure a large dust storm on Earth and have instruments to detect atmospheric electric and magnetic fields on future Mars landers.

To date, none of the robotic Mars landers and rovers that have operated on the Martian surface have experienced any consequences of this phenomena, including the rovers Spirit and Opportunity. However, more complex landed laboratories, such as the Mars Science Laboratory (MSL), slated to launch in 2009, may be far more sensitive to electrical disturbances than previous missions. As such, this research is a key stepping stone to more advanced robotic and human exploration of Mars.

The team includes researchers from NASA Goddard, NASA Glenn (Cleveland, Ohio), NASA Jet Propulsion Laboratory (Pasadena, Calif.), University of Arizona (Tucson), University of California (Berkeley), SETI Institute (Mountain View, Calif.), University of Washington (Seattle), University of Michigan (Ann Arbor), and Duke University (Durham, N.C.). This research was sponsored in part by the NASA Mars Fundamental Research Program, which is operated out of NASA Headquarters in Washington, DC. For the complete article, refer to:

<http://www.gsfc.nasa.gov/topstory/2004/0420marsdust.html> ■

Safety Alerts

The Center receives information from the Government-Industry Data Exchange Program (GIDEP) concerning product recalls. In an effort to keep employees informed of recalls that may affect you at work and at home, Code 300 will provide alerts or recalls that have been issued by the Consumer Product Safety Commission along with web site links for retrieving further information on the recalls or alerts.

New Federal Web Site for Agency Recalls: <http://www.recalls.gov>

Fluke Corp. Announce Recall of Electrical Testing Components.
<http://www.cpsc.gov/cpscpub/prerel/prhtml04/04131.html>

AURA Satellite Set to Launch This Month

By Lynn Chandler

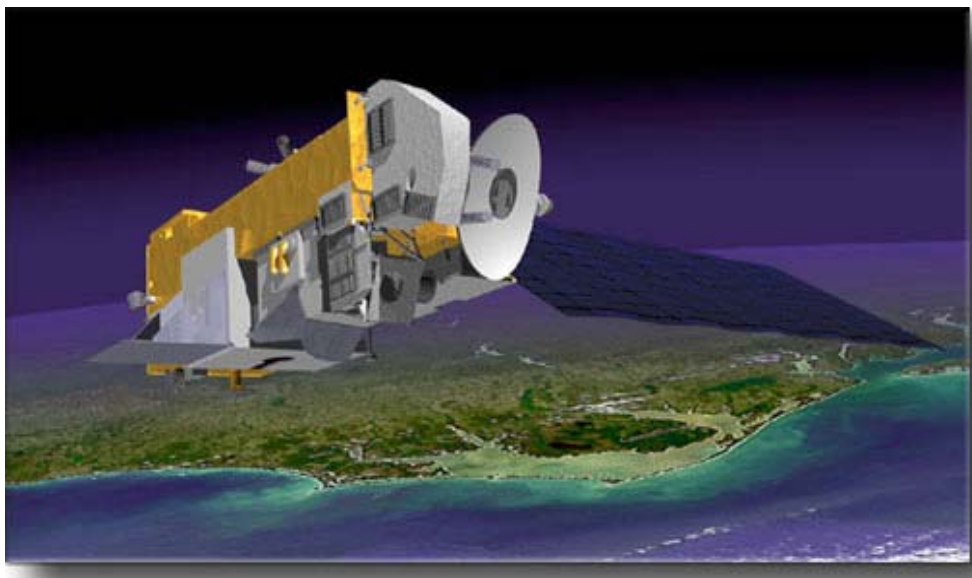
Aura, a mission dedicated to the health of the Earth's atmosphere, is scheduled to launch from Vandenberg Air Force Base, California later this month.

Aura will help answer key scientific questions, including whether the Earth's protective ozone layer is recovering; what are the processes controlling air quality and how is the Earth's climate changing?

Aura will also help scientists understand how the composition of the atmosphere affects and responds to Earth's changing climate. The results from this mission will help scientists better understand the processes that connect local and global air quality.

The four instruments on Aura are each designed to survey different aspects of Earth's atmosphere. Aura will survey the atmosphere from the troposphere, where mankind lives, through the stratosphere, where the ozone layer resides and protects life on Earth.

With the launch of Aura, the first series of NASA's Earth Observing System satellites is complete. The other satellites are, Terra, which monitors land, and Aqua, which observes Earth's water cycle.



Artist concept of AURA satellite

Aura's four instruments are: the High Resolution Dynamics Limb Sounder (HIRDLS); the Microwave Limb Sounder (MLS); the Ozone Monitoring Instrument (OMI); and the Tropospheric Emission Spectrometer (TES).

HIRDLS was built by the United Kingdom and the United States. OMI was built by the Netherlands and Finland in collaboration with NASA. NASA's Jet Propulsion Laboratory in Pasadena, Calif., constructed TES and MLS. Goddard manages the Aura mission.

For Aura information and images on the Internet, visit:
<http://www.gsfc.nasa.gov/topstory/2004/0517aura.html>
or
<http://aura.gsfc.nasa.gov/> ■

Employee Spotlight



By Tomeika Blackwell

Sharon Garrison is a dedicated and zealous employee. Her extraordinary work is conveyed through her many accolades and awards she has received since beginning her career at NASA.

She has received the Exceptional Achievement Medal for outstanding leadership as Coordinator of the NASA Institute for Advanced Concepts (NIAC); the Goddard Exceptional Achievement Award for sustaining achievements as agreement/reimbursable analysis manager; the GSFC Group Achievement Award for Productivity Improvement and Quality for leadership and vision in the development of the Consolidated NMOS contract transition; the Gold Star Award, which is the highest award the Mission Operating Division can give one of its own; and numerous others.

Since Garrison joined NASA over 24 years ago, she has taken many jobs within Goddard. Garrison graduated from the University of Maryland, Phi Beta Kappa, with a degree in chemistry. Upon graduation, she was given the opportunity to work as a polymer chemist in the Materials Control and Application Branch at Goddard. Garrison was responsible for testing and preparing polymers for space flight application and use, including, testing for outgassing and strength, and performing formal coating on flight materials and parts.

During this time, she was one of few women employed at Goddard. Garrison said, "I love chemistry. Working as a polymer chemist was a great opportunity for me to do work in my discipline and work at one of the best federal agencies."

Some time later, Garrison was chosen to participate in the Federal Women's Program. The goal of the program is to get women connected and involved in the Agency.

She later became the Agreements Manager for the Mission Operation and Data Systems Directorate, formally Code 500. Her duties included oversight and update of all GSFC agreements with national entities, such as U.S. government agencies, universities and laboratories. The support related to tracking communications, data acquisition and flight dynamics support.

In a prior position, she coordinated reimbursable support for national and international entities, which included France,

Germany and Japan. Both positions were very analytical jobs and needed a well-organized and detailed person to do them. Garrison was just the right person to get the job done.

During her stay at code 500, she found a lot of love in her job. "I could not walk in the room without hearing laughter. You accomplish much more when you connect to people not things," she said.

Garrison is currently the contracting officer's technical representative and the coordinator for the NIAC where she is the NIAC Director's point of contact into the Agency. In this capacity, she works diligently to connect NIAC with all relevant NASA Agency, (HQ and Center), activity. She is responsible for technical contract oversight and evaluation and oversees the NIAC contract finances. Additionally, Garrison prepares the technical portions of the request for proposals for the contract management and operations of the NIAC and coordinates the technical review of these proposals.

The purpose of NIAC is to revolutionize advancement in aerospace performance as it aligns with NASA's missions and goals.

Since its establishment, in February 1998, NIAC and its funded contracts, have received recognition for their innovative approaches through many papers, and national and international scientific press publications.

"This is exactly what I want to do at this place in time. Being the coordinator for the NIAC is a very challenging and rewarding job. Our focus is not on technology, but rather systems and architecture. For example, rather than trying to build a faster rocket, we are seeking new transportation systems to transcend us into space," Garrison said.

"I have a job that will change the world and the way the world operates. Many of the NIAC funded advanced concepts will require global participation and cooperation. That is a big enough reason for me to wake up every morning," she added.

Her diligent work and effort has assured the continuation of the success of the NIAC, NASA's nationally prestigious Institute. Garrison and her two children, Shahla and Hannah, reside in Maryland. ■

Photo by Chris Gunn/293



Sharon Garrison

NASA Mission Contributes Sun Station to Planet Walk

By Nancy Neal

NASA Goddard Space Flight Center has joined with the Friends of Anne Arundel County Trails to create a project that will enable County residents to stroll, bike or rollerblade through the solar system. The two groups are working together in a partnership to complete the Friends Planet Walk, a linear art gallery and unique educational exhibit of our solar system. NASA's Solar Dynamics Observatory Project Education and Public Outreach Office was responsible for designing and creating the educational content and graphics for the signage that will be displayed at this incredible exhibit.

"The SDO project is extremely proud to be a contributing partner in the development of this educational and cultural resource," said **Robert Lilly**, SDO Deputy Project Manager at Goddard. "The dedication and enthusiasm of the Planet Walk committee inspired us from the very beginning to assist with the scientific and educational components of the Sun Station. Our collaboration has provided a perfect vehicle for the SDO to contribute to NASA's goal of improving public understanding and appreciation of science and technology. I'm really looking forward to taking a "planet walk" with my own family. "

Installation on the Sun Station began on May 12 when a large crane was moved into position. By 8:30 a.m. installation had begun. Sculptor, Judy Sutton spent several hours installing the prisms inside the center rings of the sculpture. Sutton used sanding tools to make final adjustments to the prisms and shims before permanently installing them. At about 3 p.m., the top circular portion of the sculpture containing the prisms was lifted into place.

Janet Owens, County Executive for Anne Arundel County arrived around 2:00 thrilled and excited about the event. She gave high praises for the samples of the Sun panel displays that are currently being fabricated. Emilie Drobnes and Dean Pesnell of GSFC contributed their time and talent to design these panels that are part of SDO's contributions to the Sun Station and Planet Walk. They will be installed and ready for the Grand opening ceremony scheduled for June 26, 2004.

Representatives from the Maryland Department of Transportation, reporters from the Maryland Gazette and the Severna Park Voice newspapers were in attendance. Barbara Lambert, who negotiated this partnership between NASA and the Planet Walk Committee, and Rob Lilly both from the SDO project were on site as well. Numerous representatives from the AA Recreation and Parks Department, Friends of Anne Arundel County and the Planet Walk committee were also there.

The Sun Station portion of the exhibit is being built on property donated by the Manekin Corporation adjacent to the Baltimore & Annapolis trail, just behind Harandale Plaza in Glen Burnie. The stainless steel sculpture rises 24 feet in the air and is

Photo by Barbara Lambert/SDO Project



Sun Station being installed

topped by a 10 foot sphere comprised of 9 stainless steel circles, each representing one of the planet's orbits. Inside the rings are 48 large acrylic prisms. The prisms will cast showers of rainbows on the landscaped gardens and pathways surrounding the sculpture. The sculpture adds the active ingredient of demonstrating the sun's roll in providing our world with colors. Included in the landscaping surrounding the site is brickwork paving depicting our spiral galaxy and 9 planet gardens as well as the educational graphics and text about the sun. The sculpture was fabricated in Hagerstown Maryland.

"We are thrilled to have NASA on board and join in partnership with Friends on this project," said Stan Lebar, manager of the Planet Walk for the Friends. "With NASA's support" says Lebar, "we can realize a world class exhibit on the Baltimore Annapolis Trail Park that will bring the wonders of our Solar System to our young students and our residents of every age to enjoy."

The Planet Walk will shrink our 3.7 billion mile solar system down to 4.6 miles and place the sun and all the planets on the B&A Trail keeping the distance between the planets and sun in perspective.

Continued on page 13

Sun Station (cont'd)

The project was initiated by a \$200,000 grant from the Maryland Department of Transportation. The current estimated value of the project is \$750,000 not including the substantial NASA effort. The final value of the project will be over \$1 million.

The futuristic, creative digital presentations and graphic displays are directed towards students and will entail multiple disciplines including science, mathematics astronomy, physics and more. The site is designed to accommodate half-day school field trips and the location is accessible to the citizens of Anne Arundel County. Over half of the residents in the County live within 2 miles of the B&A Trail where the Planet walk will be located. A companion website, in consultation with NASA, is also under development. The website will provide lesson plans, assessments and educational information for educators.

While other Planet Walks exist, the approach taken by the Friends is to create a distinctive exhibit. Each station in the exhibit is unique in shape, size and concept. Each station will contain a full complement of educational displays relevant to, and centering around a one-of-a-kind art sculpture for that planet.

In addition to the Sun station, Friend's is completing a station for each of the other planets. The second station to be completed will be Pluto at the far end of our solar system. The Pluto station will be located near the Earleigh Heights Ranger Station on the B&A Trail. Like the Sun Station, the location allows for parking and restrooms. Saturn, which will be located at Marley Mall, is planned to be a small amphitheater with the planet as the stage backdrop. The rings of Saturn will be incorporated into the amphitheater and the area surrounding the structure.

Photo by Chris Gunn/293



Sun Station Sculptor, Judy Sutton

The NASA SDO project is the first Space Weather Research Network mission in the Living With a Star program. SDO is designed to help us understand the Sun's influence on Earth and near-Earth space by studying the solar atmosphere on small scales of space and time and in many wavelengths simultaneously. SDO will study the source of the Sun's energy, the solar interior, as well as the many manifestations of the storage and release of energy in the Sun's atmospheric layers. SDO will provide us with the tools and scientific understanding that will enable us to improve the quality of solar activity forecasts. SDO, scheduled for launch in 2008,

is designed to fly for a nominal 5 years.

More information on SDO can be found at:<http://sdo.gsfc.nasa.gov> ■

Capitol College Commencement (cont'd)

During his address, Dr. Diaz spoke of the Goddard-Capitol College connection. "Capitol College has continued its revolutionary path from its proud beginning in 1927, establishing a partnership with NASA/Goddard Space Flight Center in October 2002. The Space Operations Institute is working to change the process for control of space operations and to develop a pipeline of space operation personnel for NASA," added Dr. Diaz.

He spoke of the accomplishments already achieved with the Space Operations Institute which has already taken control of five NASA satellites with a NASA subcontractor. During the 2003-2004 academic year Goddard welcomed 13 student interns, who were able to gain hands-on experience in satellite flight operations. Four students were certified as Satellite Mission Planners and Flight Operations Controllers.

These Goddard missions are currently operating beyond their planned mission model, yet continue to provide vital science information and serve as valuable training ground for the next generation of flight operation controllers. Since the summer of 1992, NASA has also funded a Pre-College Minority Engineering Program held at the Capitol College campus. To date, 115 students have attended the program and today you will find many working in aerospace, some at Goddard, and others pursuing graduate work.

Dr. Diaz closed his presentation with a favorite quote from Dr. Goddard, "It is difficult to say what is impossible, for the dream of yesterday, is the hope of today, and the reality of tomorrow."

Following his remarks the graduating class of 2004 crossed the stage to receive final acknowledgment of their academic achievement. "I wish you all the very best in your pursuit of a life filled with spirit and opportunity," concluded Dr. Diaz. ■



Gay and Lesbian Pride Month

Gay and Lesbian Pride Month is a time to celebrate the progress made in creating a society more inclusive and accepting of gays and lesbians, and stems from the 1969 Stonewall rebellion in New York. Attendees at Stonewall Inn, a popular gay bar, resisted harassing occurrences, sparking a three-day protest against the mistreatment inflicted upon the gay community. This 1969 protest marked the catalyst for the modern political movement for gay and lesbian liberation and civil rights.

Executive Order 13087 issued in May 1998 provides for a uniform policy for the Federal government by adding sexual orientation to the list of categories for which discrimination is prohibited. It reaffirmed the longstanding internal policy that prohibits discrimination based upon sexual orientation within the Executive Branch civilian employment. In June 2000, President Clinton proclaimed June as Gay and Lesbian Pride month, and encouraged "all Americans to observe this month with appropriate programs, ceremonies and activities that celebrate our diversity and recognize the gay and lesbian Americans whose many and varied contributions have enriched our national life."

Deputy Center Director and Diversity Champion, Bill Townsend stated, "We have made significant progress on this subject in the past several months, and I remain committed to helping further knowledge of gay and lesbian issues here at Goddard. Gay and Lesbian Pride Month affords us an opportunity to help increase that knowledge and understanding. Our employees are our greatest resource, and our accomplishments have been enriched by the various unique talents from our diverse workforce."

At Goddard, a new GEWA club, the NASA/GSFC Gay, Lesbian, Bisexual and Transgender Federal Employee organization (FedGLOBE) is coordinating events to support and recognize Gay and Lesbian Pride Month. The NASA/GSFC FedGLOBE was formalized in April 2004 as an outgrowth of a Diversity Council-sponsored Dialogue on Sexual Orientation held in December 2003 to reiterate the importance of creating respectful workplace environments, and increasing knowledge, awareness and sensitivity on this issue. The NASA/GSFC FedGLOBE seeks to create an inclusive work environment for

individuals regardless of their sexual orientation and gender identity - currently its membership includes over 50 employees of GSFC.

In celebration of Pride Month, the NASA/GSFC FedGLOBE is coordinating/sponsoring the following events:

- Get-together at the Rec Center with light food and beverages
- Coordination of Pride events with other Federal agencies FedGLOBEs
- Meeting and socializing at the Pride Festival on Sunday, June 13 in Washington, D.C.

The club participated in the recent QWL Expo, and plans to participate in the upcoming Celebrate Goddard activities. Other future events include speaker programs, a day-long hike to Shenandoah, and pot-luck dinners.

For more information on FedGLOBE or Pride activities, please contact Dr. Bob Lutz at Robert.J.Lutz@nasa.gov or by phone at 301-286-1006.

For more information on Goddard's diversity activities, please contact Sharon M. Wong at Sharon.M.Wong@nasa.gov or by phone at 301-286-0475. ■

Celebrate Goddard July 27 -29

The Diversity Council and the Goddard Diversity Action Team invites all Goddard employees to Celebrate Goddard!

Celebrate Goddard is a time for appreciating the accomplishments of Goddard's Diverse workforce.

This year's theme is *Many Faces, Many Places, Many Voices: One Goddard* and we are anticipating an extraordinary celebration.

Here's a preview of the planned events!

July 27 - Contractors and GEWA Club Booths, Food, Fun and Live Entertainment

July 28 - Drama Performance

July 29 - Goddard Directorate Booths, Special Keynote Speaker, Karaoke for Diversity, Food, Fun and Live Entertainment

Additional details on all the Celebrate Goddard events are forthcoming.

Congratulations to Federal Executive Board Recipients

Five Goddard employees were recognized as the Federal Executive Board's (FEB) *Excellence in Federal Career* bronze and silver award recipients last month.

The Baltimore Federal Executive Board's *Excellence in Federal Career Awards* Program honors outstanding men and women in the Federal Government who have performed exceptional and meritorious work and to encourage high standards of performance in the Federal Government.

Photos by Debbie McCallum/293



Cheri Carroll

The silver recipients included, **Cheri Carroll**, directorate resources manager of Management Operations received recognition as Outstanding Supervisor for her responsibility of the resource activities of six major organizations that are comprised of 560 civil servants and nearly 750 contractors. Carroll is responsible for formulating multiple budgets, executing them and accounting for all expenditures. In addition, Carroll supervises 13 resource analysts that are collocated across the large directorate.

Carroll's ingenuity, determination and technical skill has assisted the directorate to successfully transition through major challenges.

Jean Raymond, secretary in the Systems Management Office (SMO) was awarded for her Outstanding Clerical support and exceptional proactive performance. Raymond's outstanding performance has drawn unsolicited praised from her supervisor's colleagues and from NASA Headquarters senior-level staff.



Jean Raymond

Throughout his career, **Kevin Hartnett** has consistently volunteered his time to the community around him to share his talents to educate and inspire students of all ages, which warrants him the Community Service Award from the FEB.

Hartnett combines his passion for his work at NASA and his lifetime love of amateur astronomy with genuine gifts in poetry, photography, music, counseling and project management to



Kevin Hartnett

responsible for implementing site investigations and restoration programs including remedial action at the Wallops Facility.

Fields has successfully competed for and has been selected into the Advanced Leadership Program at GSFC. This 2-year program is very demanding and exposes participants to a variety of work experiences, training and instruction preparing them as future leaders.

Information Technology Specialist, **Mary Collins** also received bronze Outstanding Professional award for her relentless dedication and exceptional performance in the the Applications Development Branch. While handling her assigned



Mary Collins

give to his community and in so doing, he leads and inspire thousands of youths to explore the cosmos and to take interest in math and science.

One of the two bronze award recipients from Goddard are, **Susan M. Fields**, an environmental engineer in the Environmental Office, NASA Wallops Flight Facility. Fields is an Outstanding Professional Award recipient for her outstanding work in the environmental field. She is responsible for implementing site investigations and restoration



Sue Fields

duties, Collins managed to take on additional responsibilities, serving as the branch's customer service representative. Her superb performance improved the quality and timeliness of the branch's customer service work.

All the recipients were recognized at the 37th Excellence in Federal Career Awards Ceremony and Luncheon held on May 7 at Martin's West, in Baltimore, Md. This regional program was held in conjunction with national Public Service Recognition Week, May 3-9.

Cirrus Cloud Studies Over Tropical Kiritimati Island

By Cynthia O'Carroll

NASA scientists at Goddard Space Flight Center (GSFC) and the Jet Propulsion Laboratory (JPL) are hard at work building and testing a new lidar instrument that will study cirrus clouds in the tropical south pacific.

The Kiritimati Island Lidar Trailer (KILT) lidar is an autonomous, eye safe instrument that will help scientists study the frequency or absence of cirrus clouds in the tropics and the role they play in the tropical radiation budget.

Collecting this information is important because many atmospheric circulation patterns start in the tropical Pacific. Little is known about the atmosphere within $\pm 5^\circ$ of the equator since current satellite studies of tropical cirrus clouds suffer from lack of spatial resolution, both horizontal and vertical, and lidar studies so far have been of very limited duration. In light of concerns over global climate change, routine observations in this region are therefore of great benefit to many programs including those dealing with atmospheric chemistry, dynamics and radiation, and validation of satellite instruments. The cloud data gathered by this new lidar instrument will help to fill a clear need for long-term, high spatial resolution observations of cirrus cloud layers near the equator.

Pronounced "Ki-ris-mas," Kiritimati Island is located due south of Hawaii in the equatorial dry zone of the central Pacific where significant rainfall only occurs during the warm phase of the Southern Oscillation. The Island is the world's largest atoll, a ring-shaped coral reef and small island enclosing a lagoon and surrounded by open sea.

The thick, persistent cloud cover typical in the convectively active western Pacific is absent in the region of Kiritimati Island so it provides the clear skies required to study the high cirrus clouds that are approximately 40,000 to 50,000 feet above the ocean. It is also a good place to study the changes in the tropical circulation since the island is a large thermal mass completely surrounded by water. The temperature of the ocean stays relatively constant and does not fluctuate as it does over land.

The KILT instrument will measure the presence of clouds and their physical state, whether they are solid ice particles or liquid

round particles. This information will enable modelers to estimate the amount of sunlight in those locations. This is helpful to understanding the radiation budget of the Earth.



Kiritimati, Kiribati (Christmas Island)

The lidar transmits two different colors of wavelength, one is infrared and one is visible. The instrument will detect light scattered from beams transmitted by the lidar instrument. Light is scattered by atmospheric molecules and also by cloud particles. When clouds are present, enhanced light scattering occurs, and it is this enhancement that allows the detection of clouds above the lidar. Detected changes in the polarization of the lidar beam can give information as to whether the clouds

are made up of droplets or ice crystals.

Constructed jointly at NASA GSFC and JPL, the KILT lidar is currently undergoing operational testing at Goddard and will then be shipped to Table Mountain, Calif. for more extensive testing. The system is mobile and it is expected to operate in the field for 1-2 years.

The trailer housing the KILT Lidar is approximately 8 ft wide, 15 ft long and 4 ft high and it will be equipped with a complete meteorological package, to make measurements of rainfall, wind and temperature. It has solar panels and a windmill to provide the necessary power to operate the system. A battery bank stores excess generated power for dark and windless periods. The instrument will essentially 'phone home,' transferring data via satellite phone to a server at Table Mountain.

Thomas J. McGee, of NASA GSFC's Atmospheric Chemistry and Dynamics Branch is anxious to see it lidar in place on the island. "The environment is rather harsh on the island and will likely take a toll on the instrument and saltwater and critters could damage the optics and electronics," McGee stated. "But we have our fingers crossed and will be anxiously waiting for the lidar instrument to tell us more about the cirrus clouds in this remote environment."

Prestigious India Filmmaker Shoots Blockbuster from Goddard

By Sarah Dewitt

At 6:00 AM on Monday April 26, a crew of nearly fifty filmmakers, actors, and technicians arrived at the Goddard Space Flight Center's East Campus. About half of this group traveled from Baltimore, Washington, and New York City. The other half journeyed from Bombay, India – home to the world's largest filmmaking industry.

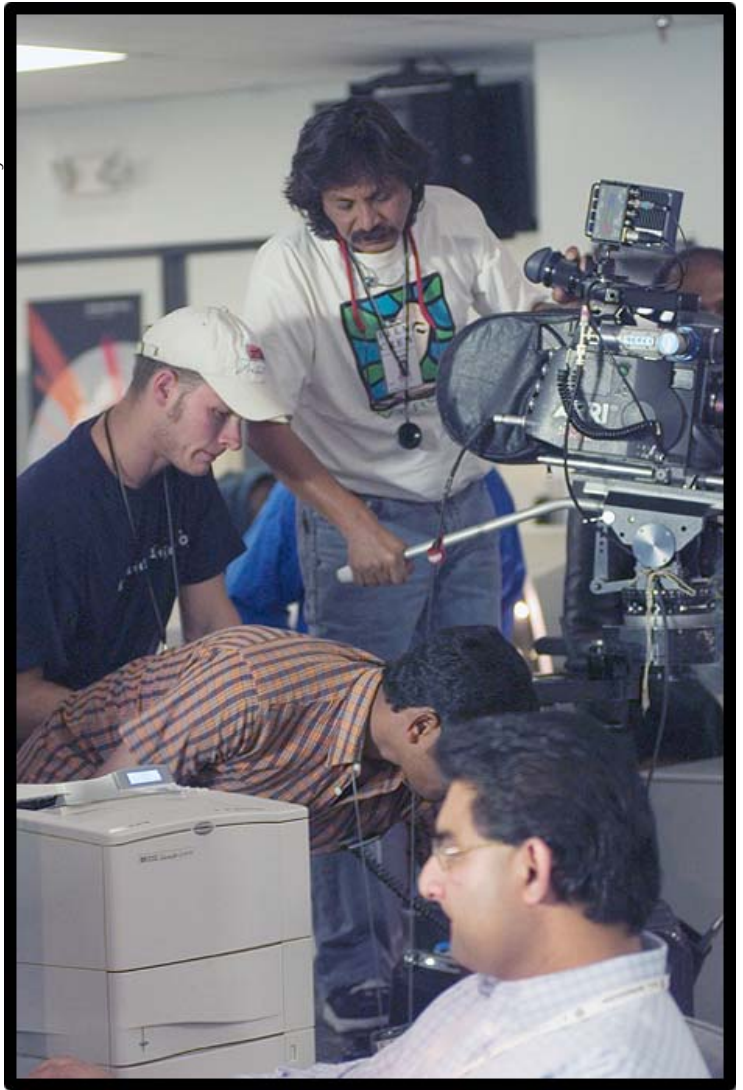
At the request of director Ashutosh Gowariker, the group traveled to the US to shoot scenes for the full-length feature film *Swades: We The People*. The film tells the story of a NASA engineer who returns home to his family in India while he and his colleagues move towards completion on the Global Precipitation Measurement (GPM) satellite. Nearly all of the film was shot and edited in India prior to shooting the NASA scenes, which will serve as capstones at the beginning and end of the story.

One of the highest-budget films in India film-history, *Swades* is expected to be a blockbuster. It is written and directed by Ashutosh Gowariker, one of India's most respected and acclaimed film directors, whose last film *Lagaan* was nominated for an Academy Award. *Swades* stars actors Shah Rukh Khan and Gayatri Joshi. Khan is India's top male actor and Joshi is a former model turned actress. Both boast an enormous number of fans around the world.

Upon their arrival at Goddard, the crew began shooting in the Earth Observations System Operations Center (EOSOC) in Building 32 on Monday morning. The operations center, which is staffed around the clock, proved to be home to a number of natural actors who were asked to go about their daily routine while the cameras were rolling. Director Gowariker was so impressed with their performance that he invited several of these Goddard employees to act in later scenes throughout the film. **Ed Colwell**, **Kevin Nelson**, **Frank Harleston**, **Carlos Hester**, and **Batool Zaidi** were cast as core members of the GPM engineering team in the film.

The crew then traveled to Building 28 where they filmed a scene in the sky-lit atrium featuring Goddard's large rotating globe. The scene required over a dozen Goddard employees to walk, talk, and act their way around the building's north and east wings, while supporting actor Rahul Vohra, complete with Goddard lanyard and imitation badge, was in the spotlight.

Photo by Chris Gunn/293



The camera crew gets to work in the Flight Dynamics Facility.

Part of Monday and all of Tuesday were spent in the NASCOM control area of Building 14. NASCOM security officer **Rob Bryant** and his team were instrumental in getting the crew familiar with the facilities and operations. Producers from the Goddard Television group were on set with state-of-the-art science visualizations on nearly every television and computer monitor in sight. Senior Producer **Michael Starobin** even wrote a portion of the script that was then read aloud by actual NASA voice control operators to simulate real-life mission communications.

Tuesday also brought with it the arrival of lead actor Shah Rukh Khan, who was treated to a makeshift trailer in one of the Building 14 meeting rooms. With dozens of films under his belt, Khan is an international superstar, and even had his fair share of fans at Goddard. He was very gracious to all of his NASA fans, both old and new, in the midst of a very strenuous work schedule.

Continued on page 18

India Filmmaker (cont'd)



Director Ashutosh Gowariker works with lead actor Shah Rukh Khan.

Wednesday morning brought Khan and the crew back to Building 28 to film one of the largest and most complicated scenes in the schedule. An impromptu tour of the Flight Dynamics Facility, thanks to Shiju Nair, impressed the director enough to shift the entire scene up one floor. Dozens of FDF employees were asked to fill every chair in the facility to re-create a bustling atmosphere for the scene. Goddard's own Greg Dell gave the crew access to his office, which was transformed into the office of Mohan Bhargava (Khan's character). The set director was even able to have a custom office nameplate made specially for the scene.

Later the crew moved to the Building 7/10/15/29 complex where they began a long night of shooting in the shuttle mock-up and centrifuge areas. The remarkable staff of the complex stayed after hours to help the director with props, machinery, and technical support to lend the scenes an air of NASA authenticity. The director even managed to film an acoustic test on an actual spacecraft. After he dressed the extras in bunny suits and mounted the camera on a crane, he called action. Five hours later, the crew made plans to revisit the 7/10/15/29 complex in the morning and finish the shoot.

Thursday morning the crew split up into several groups and traveled around center to pick up the last remaining shots in the schedule. These included various exterior scenes and rooftop shots from Buildings 8, 22, 7, and the Visitor Center. The crew used a car-mounted camera to film Shah Rukh Khan's character driving his silver Jaguar around center. After all scenes were wrapped, the crew made a speedy getaway to capture a few shots in downtown Washington before traveling on to the Kennedy Space Center for further shooting.

The filming was a huge success thanks in large part to the **over 100** individual Goddard employees who personally helped the cast and crew during their visit. Look for more *Swades* news later this year when the film is released in India. ■

Kiritimati Island Study (cont'd)

The KILT is currently located inside a lab in the basement of Building 33 at GSFC, however, McGee is hoping to have it in place on Kiritimati Island by mid-summer. Getting permission to ship it to the island has presented some logistical difficulties thus far. An international agreement between NASA (USA) and the Kiribati Republic is required and the NASA International Affairs Office is currently negotiating with the proper authorities. NOAA operates a permanent wind radar facility on the island and McGee has obtained tentative permission to co-locate with them.

The placement of this small aerosol/cloud lidar at Kiritimati Island represents the first step towards establishing a Network for the Detection of Stratospheric Change (NDSC) station in the tropics. The original concept of the NDSC was for a global network of stations, primary and complementary, making regular atmospheric measurements and to specifically include stations in the Arctic, Northern-mid-hemisphere, Tropics, Southern-mid-hemisphere, and the Antarctic. While a significant number of stations are currently involved in the NDSC, in more than 20 different countries, the closest measurements to the tropics are at Hawaii, 19.5°N, and at Reunion Island, 21.8°S, neither of which are truly representative of the tropical atmosphere.



Goddard scientists installing the optics package for the KILT lidar. The larger telescope is the laser transmitter.

At the end of the first year of operation at Kiritimati Island a decision will be made and a proposal submitted either to continue the measurements at the same location or to move the system to a new site.

This is a joint project between NASA JPL and GSFC with Stuart McDermid leading and supervising the effort at JPL and Thomas McGee doing the same at GSFC. Other members of the team include Thierry Leblanc and T. Daniel Walsh at JPL, and Donald Silbert and Larry Twigg at GSFC. The team also cooperates with Ken Gage at the NOAA Aeronomy Laboratory for both the logistical considerations for Kiritimati Island to enhance the scientific investigations of dynamic processes in the tropics. ■

Women Accomplishing Change

By Tara Holby

On April 29, 2004, the Women's Advisory Committee (WAC) hosted a Knowledge Sharing Workshop. The focus of the workshop was to grow the WAC community and replicate the WAC experience.

A brief introduction by Associate Director, Alison McNally, commenced the workshop. McNally articulated the values of Goddard and the importance of the WAC, followed by, jump-start storytelling by Facilitator Seth Kahan. Attendees were given the opportunity to share experience centered on the challenges of life as a woman. "Women were sharing their personal stories," says **Lynn Chandler**, Public Affairs Specialist, "ranging from conforming in a predominantly male culture to having their ideas not heard or even ignored."

Power and energy overwhelmed the room as individuals told their stories, surfacing tears of sorrow and, at times, hugs of happiness. "One might think that there was a lot of whining and complaining in a room filled with almost 100 women - but it was quite the opposite," continues Chandler. "It was a safe place to share experiences, identify common themes and to develop a way to make positive changes." The workshop helped the participants recognize that they are not alone and the culture at GSFC is in need of change. Barriers and discrimination still slow the advancement of women at Goddard. The stories revealed fallacious assumptions about the capabilities of pregnant women and new moms, in addition to, stories of women being forced to silence when voicing opinions. However, the stories also shared a love for Goddard and a commitment to the mission. The day ended with a new, refreshed meaning of career, family and the importance of relationships, as well as, future plans to build the WAC community.

The Women's Advisory Committee (WAC) brings together people, and resources, educates employees and management, and gets things done to make life easier for women working at Goddard. The WAC promotes a creative, flexible environment where the continuing contributions of women in the workforce



WAC Knowledge Sharing Workshop, April 29, 2004

are endorsed, enhanced, and valued. It is the mission of the WAC to empower the unique capabilities of each individual in order to assure a viable future for the GSFC community.

The Women's Advisory Committee (WAC) focuses on helping women balance work and family life. Program initiatives include inauguration of the Center wide Lactation Program and the Dependent Care Referral Service. Furthermore, the WAC worked with OHR, Security, and other offices to develop a common protocol for response to employees who may be either victims or perpetrators of domestic violence (<http://ohr.gsfc.nasa.gov/family/domestic/home.htm>).

Upcoming Women's Advisory Committee (WAC) events include a series of lunchtime programs entitled "Bringing up Baby." The next program will discuss "The Development Tasks of Adolescence" on June 17, 2004, at 11:30 a.m. in the Bldg. 3 Goett Aud. This program is geared for parents, grandparents, uncles, aunts, godparents, and mentors to kids ages 0 – 50. Another exciting WAC event is Women's Equality Day, which takes place August 26, 2004. Women's Equality Day (WED) celebrates diversity, determination, and victory, in particular the celebration of Women's right to be heard through the vote. This year's WED celebration will bridge the gap between the generations of women at Goddard by challenging all women, contractor and civil service, to excel together and become one community, one voice.

For more information about the WAC, visit <http://eeo.gsfc.nasa.gov/wac/>



Associate Director, Alison McNally at WAC Knowledge Sharing Workshop.

Dr. Shepherd Receives Presidential Award

By Cynthia O'Carroll

Dr. J. Marshall Shepherd of NASA Goddard Space Flight Center recently received the Presidential Early Career Award for Scientists and Engineers (PECASE). The Presidential Award is the highest honor bestowed by the U.S. government on outstanding scientists and engineers beginning their independent careers.

The award, announced by the National Science and Technology Council (NSTC) was established to implement and integrate the President's science and technology policy agenda across the federal government. The PECASE awards were created to foster innovative and far-reaching developments in science and technology, increase awareness of careers in science and engineering, give recognition to the scientific missions of participating agencies, enhance connections between fundamental research and national goals, and highlight the importance of science and technology for the nation's future.

"I was surprised and honored to receive the Presidential Award at the White House," stated Marshall. "Receiving this prestigious award provides confirmation that NASA's work to understand and protect our home planet is being recognized at the highest levels."

Two ceremonies were held to honor Marshall and the three NASA-funded researchers who also received the award.

The first ceremony was held at NASA Headquarters on May 3. Dr. John Grunsfeld, NASA's Chief Scientist, spoke briefly about the history of the awards and each of the four recipients spoke about their research. Following the presentations, Dr. Grunsfeld presented NASA plaques and posed for pictures with the recipients.

The White House ceremony and reception was held on May 4 in the Eisenhower Executive Office Building. Dr. John Marburg, the President's Science Advisor, presented the

awards. Along with the honor, awardees receive funding for their award-winning research. Among the other dignitaries in attendance were Don Evans, the Secretary of Commerce and Anthony Principi, the Secretary of Veterans Affairs.

Marshall, a research meteorologist at Goddard, received the award for his innovative work using satellites and computer models to investigate the role of urban environments on the Earth's water cycle, particularly precipitation and storms. This work has been published in several science journals and was featured in Time magazine and other media outlets.

Marshall has enjoyed a very rewarding career as a NASA research scientist. Among his highlights are serving as a member of the Precipitation Missions Science Team and Deputy Project Scientist for the Global Precipitation Measurement mission. For

the past 10 years, he has used aircraft, satellites, radars, and sophisticated models to conduct his research in an effort to understand and predict thunderstorms, hurricanes and other weather phenomenon.

Marshall supports NASA and the larger scientific and educational communities through his work as a JASON Host Researcher, membership in American Meteorological Society, National Technical Association, American Geophysical Union and the International Association of Urban Climatology among others.



Dr. John Grunsfeld, (right) NASA's Chief Scientist, presents the award to Dr. J. Marshall Shepherd

As a NASA expert on weather, climate, and remote sensing, Marshall makes TV and radio appearances on CNN, CBS, ABC, NBC, and CNBC. Also, he recently co-authored a children's book with Dr. Fred Bortz on conducting weather-related science projects and understanding basic weather information. The book entitled "Dr. Fred's Weather Watch," chronicles Marshall's science project days and teaches kids how to build their own weather station as well as utilize the Internet for weather.

"I am very passionate about communicating the importance of understanding planet Earth since we aren't going anywhere else for a while," said Marshall. "The next generation of Earth explorers will discover things about how the Earth works that we can't even imagine right now." He is hopeful that more young people, including under-represented minorities, will choose careers in the Earth sciences. ■

Visitors of Goddard



Members of the President's Commission on U.S. Space Exploration learn about Goddard's detector development laboratory

Photos by Chris Gunn/293



Mike Ryschkewitsch tells the Commission members about instrument development and the SWIFT spacecraft



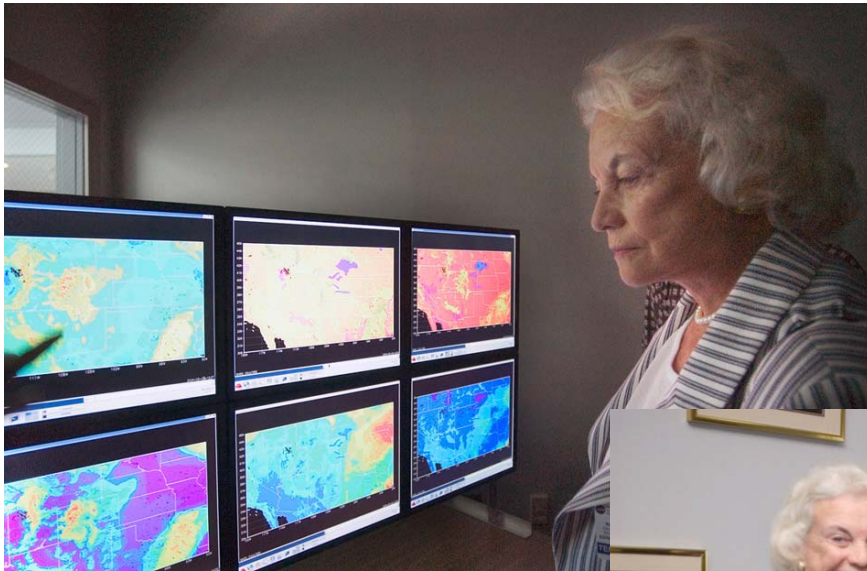
New Zealand Ambassador, John Wood talks with Mike Kienlen about HST Servicing Missions during his recent visit



Estonian Speaker of the Parliament, Ene Ergma, and Estonian Ambassador, Juri Luik, are briefed about SWIFT mission by Dr. Neil Gehrels, on a recent visit to Goddard.

Justice O'Connor Visits Goddard

Photos by Chris Gunn/293



Justice O'Connor and her staff learn about the Earth's magnetosphere in the science visualization studio with Dr. Horace Mitchell.



Director A.V. Diaz hosts U.S. Supreme Court Justice Sandra Day O'Connor and her husband, John O'Connor on their recent visit to GSFC.



Dr. Neil Gerhels tells the Justice about Goddard's upcoming SWIFT mission.

The Enforcers: Current IT Security Initiatives

Increased Internet Security at Goddard

By Tara Holby

On a recent visit to the Information Technology (IT) Intrusion Detection headquarters located at Marshall Space Flight Center, **Bernie Tomardy**, head of the Enterprise IT Security Branch (EITSB), Code 297, was shocked with the amount of IT security scans for Goddard Space Flight Center (GSFC). Tomardy says that "Goddard was averaging 52,000 – 57,000 successful scans per day!" A successful scan means that an unauthorized person successfully received a response from a system within the GSFC firewall. The IT Intrusion Detection headquarters compiles successful scan statistics for all NASA centers and ranks each center accordingly. **Jeannine Shirley**, Chief Information Office (CIO), Code 100, point of contact for the current IT security initiatives, says "Last year Goddard dropped to third [place], however, Goddard jumped back to the number one slot for successful scans." In comparison, Johnson Space Center (JSC) has a daily average of ten and Stennis Space Center averages zero successful scans.

As a result of the large amount of scans, a collaborated effort was established between the CIO and the EITSB, to improve IT security as quickly as possible. Two areas were identified for urgent IT security improvements: misconfigured e-mail servers and unused firewall ports. The CIO has the role of developing and authorizing policy to improve IT security, while the EITSB enforces the rules and standards established by the CIO.

E-mail servers manage the e-mail traffic on the network and come standard on several types of advanced computers. Many times, e-mail services are enabled by default without the user's knowledge, allowing the spread of various kinds of unwanted SPAM e-mail messages. The EITSB identified

2,800 systems with e-mail services enabled inside the GSFC network. After requiring all e-mail servers to be registered with the EITSB or become blocked from distributing e-mail, only 900

e-mail servers are active. Registering e-mail servers has helped GSFC quickly identify systems that produce SPAM and filter all e-mail exiting the network. "We have reduced the amount of SPAM being distributed and the amount of successful scans by 75%," continues Tomardy.



IT Security is important to protect the information and services Goddard provides to the public.

thousands of unused and unnecessary ports were open on the GSFC firewall. The firewall port closure plan closed 10,000 unused firewall ports each week beginning in early May 2004. After three successful weeks of port closures, the decision was made to close all remaining ports not in use on May 25, 2004. This result will satisfy the CIO's goal to have only 110 ports open on the GSFC firewall by late June 2004. In the future, the EITSB will continue to monitor all open ports on the firewall to verify security controls are maintained at the approximate levels.

The hard work of the IT security enforcers, the CIO and EITSB, will benefit Goddard employees and external partners. With all e-mail servers properly secured, users should notice a reduction in unsolicited SPAM e-mail. The tightly locked down firewall will ensure the data GSFC generates and shares with the public will be better protected from computer hackers. Most notably, the current IT security initiatives will place GSFC in the same category as JSC, averaging 12 – 20 IT security scans per day, thus removing GSFC from the number one slot on the IT Intrusion Detection headquarters report for successful scans. ■

Local Native Selected, Educator Astronaut Candidate

By Dewayne Washington

Richard "Ricky" Arnold II of Bowie, Maryland was among eleven new astronaut candidates introduced during announcement ceremony, May 6 at the National Air and Space Museum's Steven F. Udvar-Hazy Center in Chantilly, VA. The class of 2004, includes three educator astronauts, and will be the first to focus their training from the beginning on realizing the new "Vision for Space Exploration."

The introductions came during a Space Day celebration and included a crowd of next generation explorers from schools throughout the country. The new class includes two pilots, six mission specialists and three mission specialist-educator (MS-E) astronauts.

Mission Specialist-Educator Ricky Arnold, 40, has been a math and science teacher for the past year, at the American International School of Bucharest, Romania. He has also taught in Morocco, Indonesia, and Saudi Arabia.

"This is a childhood dream of mine, come true," said Arnold. "As a kid I watched the Apollo and shuttle launches, it was always a thrill." Arnold said he was on a fishing expedition with his father when he received a call from his wife by cell phone to give Houston a call. "I figured it could only mean one of two things, either I was to spend another year in Romania or another move," said Arnold. "I've been smiling every since the call."

When asked about the difference of having a teacher fly into outer space Arnold said, "Not everyone knows a test pilot or person with a Ph.D. but everyone knows a teacher. Hopefully, I can make this real for students."

Joining Arnold as NASA's first educator astronauts are Dorothy Metcalf-Lindenburger, 28, of Vancouver Washington and Joseph Acaba, 36, of Dunnellon, Florida. They were selected from over 6,600 nominations. Their education background includes science, technology, engineering or mathematics.

They will be trained to perform all the jobs and responsibilities of a Mission Specialist Astronaut. Training will include performing

Educator Astronaut Ricky Arnold of Bowie, Maryland.



Photos by NASA/Renee Bouchard



The Class of 2004 (kneeling l to r) Ricky Arnold, Dottie Metcalf-Lindenburger, Joe Acaba and Jose Hernandez, (standing l to r) Jim Dutton, Shannon Walker, Chris Cassidy, Shane Kimbrough, Tom Marshburn, and Bobby Satcher.

spacewalks, operating the Space Shuttle's robotic arm and leading research experiments. Educator astronauts will also share their extraordinary experience with millions of students and teachers and help ensure there's always a next generation primed to explore.

"We are indeed living in an age of heroic potential, as we move forward in the Solar System to explore mysterious new worlds, make important new discoveries and help to expand the sense of possibility for all humans on this planet," NASA's Administrator, Sean O'Keefe, said during the ceremony.

"Right now, tomorrow's space explorers are seated in America's classrooms. As NASA carries out the vision for space exploration, the Education Enterprise remains committed to working closely with our nation's schools, fostering learning environments that will stimulate students to participate in the journey to go to the Moon, Mars and beyond," said Dr. Adena Loston, NASA's Associate Administrator for Education.

To learn more about the Educator Astronaut Program and other NASA education activities visit: <http://edspace.nasa.gov> ■

Goddard Welcomes Eight New Explorer Schools

By Dewayne Washington



Dr. Adena Loston, Associate Administrator for Education, welcomes 50 new Explorer Schools.

On May 12, NASA officially named the next 50 Explorer Schools representing 34 states. The Explorer Schools Program is a major NASA education effort to inspire the next generation of explorers that may one day venture to the moon, Mars and beyond.

For Goddard, the names of eight additional schools were added to a list that includes five selected last year. They are Smyrna Middle School, Smyrna, Delaware; Eastern Middle School, Silver Spring, Maryland; Biddeford Middle School, Biddeford, Maine; Indian River School, Canaan, New Hampshire; Woodbury Junior/Senior High School, Woodbury, New Jersey; Middle School 44, New York, New York; Greencastle-Antrim Middle School, Greencastle, Pennsylvania; and Anna Howard Shaw Middle School, Philadelphia, Pennsylvania.

The Explorer School education initiative was launched on June 30, 2003. The program sends science and mathematics teachers "back to school" at NASA centers during the summer to acquire new resources and technology tools. The program also uses NASA's unique content, experts and resources to make learning science, mathematics and technology more appealing to students throughout the year.

Sponsored by NASA's Education Enterprise, the Explorer Schools Program is a three-year partnership between NASA and 100 Explorer School teams. There were 50

schools selected last year, the first year of the program. The teams of teachers and education administrators represent many diverse communities.

During the commitment period, NASA education specialists and scientists provide investigation opportunities and professional development for the teams to spark innovative science and mathematics instruction directed specifically at students in grades four through nine.

"Students in classrooms today are the space explorers of tomorrow. Their future role is vital to keeping our nation's technological and space exploration goals a reality," said Administrator O'Keefe. "We commit ourselves to working closely with our nation's schools to foster learning environments that will inspire young people to understand and protect our home planet, explore the universe and search for life."

Eighty percent of the 2004 Explorer Schools are located in high poverty areas, and 74 percent represent predominantly minority communities. Sixty percent of the competitively selected school teams are represented in both high poverty and high minority populations.



NASA Administrator Sean O'Keefe speaks of the importance of inspiring the next generation.

"NASA's mission is to inspire the next generation of explorers by helping to make learning science and mathematics more fun," says Dr. Adena Loston, Associate Administrator for Education. "The NASA Explorer Schools Program provides a promising avenue to positively and uniquely impact science and math instruction in our nation's classrooms."

For more information about NASA Explorer Schools visit <http://explorerschools.nasa.gov>

Goddard in the News



Photo Credit: NASA

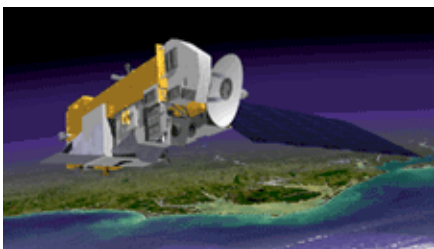
NASA (left) and South African Weather Service employees (right) prepare to launch a balloon carrying an ozonesonde, a sensor that measures ozone.

The press release titled *NASA Satellites and Balloons Catch Airborne 'Pollution Train'* was issued on May 2, 2004. NASA scientists discovered pollution could catch an airborne "express train," or wind current, from Asia all the way to the Southern Atlantic Ocean. Bob Chatfield of NASA Ames

and Anne Thompson of NASA's Goddard Spaceflight Center, used data from two satellites and a series of balloon-borne sensors to spot situations when near-surface smog could "catch the train" westward several times annually from January to April.

Media attention included: Spatial News, Universe Today, United Press International and the Washington Times. The original release can be found at:

<http://www.gsfc.nasa.gov/topstory/2004/0426pollutiontrain.html>



Artist concept of AURA spacecraft

Photo Credit: NASA

On May 17th, a press release was issued about a press conference at the Joint Assembly meeting in Montreal, Canada. *NASA Puts an AURA Around the Earth* announced a press conference about the

launch of the Aura satellite scheduled for June 19th. Aura will help scientists understand how atmospheric composition affects and responds to Earth's changing climate. The satellite will help reveal the processes that connect local and global air quality. It will also track the extent Earth's protective ozone layer is recovering.

Media around the world covered this story, from the LA Times to the Innovations Report in Germany. Rednova, Spacedaily, and the British Columbia Portal were others that ran the story. The release can be found at: <http://www.gsfc.nasa.gov/topstory/2004/0517aura.html>



Photo courtesy of P. Hoffman

These Band Iron formations are precambrian sedimentary rocks. They are highly magnetic.

On May 17th, another press release was issued at the Joint Assembly meeting in Montreal, Canada, *NASA and USGS Database Rocks the World*. NASA and the United States Geological Survey (USGS) are teaming up to create one of the most complete databases of magnetic properties of Earth's rocks ever assembled. The partnership demonstrates ongoing interagency collaboration.

This was picked up by the Big News Network, Brightsurf.com, NewsNow (UK), and United Press International among others. For the full press release: <http://www.gsfc.nasa.gov/topstory/2004/0517magnet.html>

On May 17th, a third press release was issued at the Joint Assembly meeting in Montreal, Canada: *NASA's TERRA Satellite Tracks Global Pollution*.

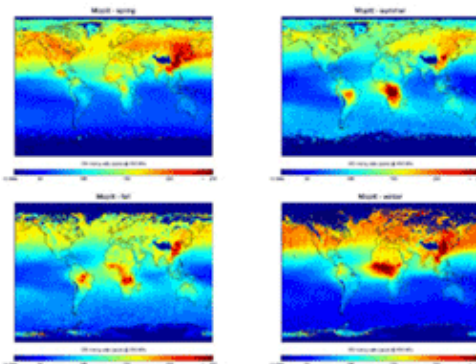
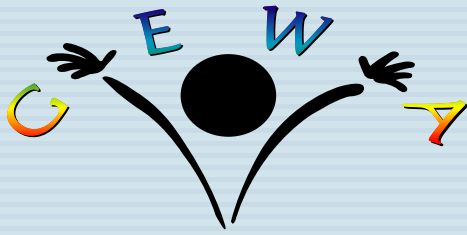


Photo Credit: NASA

These composite images depict carbon monoxide (CO) measurements at an altitude of 850 hPa (hecto pascals, a unit for atmospheric pressure). The measurements were made by the Mopitt instrument on the Terra satellite.

Data from NASA's Terra satellite is adding to our understanding of how pollution spreads around the globe. The information will help scientists protect and understand the Earth. Media outlets such as, Sciencedaily, Headliner

(Netherlands), Spacedaily, and Spaceflightnow ran the story. For the full press release: <http://www.gsfc.nasa.gov/topstory/2004/0517mopitt.html> ■



GEWA Activities

NASA Family Picnic

Join Goddard and HQ to a fun adventurous picnic on **Saturday, June 19** from noon until 4 p.m. at the GSFC Rec Center. Open to all employees and members of their immediate family (parents, spouses, siblings, children, & grandchildren) This year's theme is "Centennial Flight Celebration". Great games and attractions, water slides, picnic buffet, astronaut autographs, clowns, cash door prizes, and more. Bring your bathing suit. Check out full details on the GEWA web page at: <http://gewa.gsfc.nasa.gov>. Tickets are on sale at the GEWA Store — Buy early because prices go up on June 10, and no tickets will be sold after June 16.

Goddard Bible Club

The Goddard Bible Club meets on Tuesdays at noon in building 21, room 242. We have both speakers and videos, details may be found in Dateline. You are welcome to eat your lunch during the meeting. If you have questions, please call Bill 6-7756.

GEWA Art of Living Club Offers Guided Meditation

Come and feel more peaceful and less stressed; be more focused and energetic - no training required! Our mental and emotional state affects those around us, and by culturing a state of mental stillness we bring that peacefulness into our environment, one mind at a time. There are some things that effort cannot accomplish. Meditation is the delicate art of doing nothing - letting go of everything and being who you are. It gives your mind such a wonderful rest. Come get a charge, and help make Goddard a better place to work. We meet in Bldg. 23, Rm S300. On Monday we meet at 12:15 pm, and on Wednesday we meet at 12:00 noon. Please call Bill Hayden at 6-4267 or Chris Smythe-Macaulay at 6-2490 if you have any questions. For new folks, we will be there 5 minutes early for a quick orientation.

Announcements

Entertainers Needed

The Entertainment Committee for this year's Celebrate Goddard festivities and Community Day are looking for talented singers, dancers, musicians or anyone with a unique talent to volunteer to be a part of the festivities. Celebrate Goddard will have entertainment events **on Tuesday, July 27** between 10 a.m. to 2 p.m., and **on Thursday, July 29** between 10 a.m. to 1 p.m. and Community Day will take place on **Saturday, July 31** from 10 a.m. to 6 p.m. The events will be occurring on the Goddard Mall. Acts/performance should be approximately 20 minutes in length. Interested performers/individuals should contact Gerald Tiqui, 301-286-9461 for Celebrate Goddard festivities. Those interested in performing at Community Day should contact Nancy Neal, 301-286-0039.

Craft Vendors Needed

The Craft Committee for this year's Celebrate Goddard Day is looking for craft vendors to be a part of this event. Celebrate Goddard Day will take place on **Thursday, July 29** between 10 a.m. to 1 p.m. The events will occur on the Goddard Mall in front of Bldg 8. If you are interested in obtaining a table to display your crafts or need more information, please contact Cindi Savoy 301-286-7149 or via email Cynthia.A.Jones-Savoy@nasa.gov. The cost for obtaining a table is \$30.00 (includes table, tent, and chair). Space available on "first-come, first-served" basis.

Goddard Referral Service

Looking for information on issues such as adult care, child care, legal or financial assistance, health & wellness, or education, but don't know where to start? Let Goddard's Referral Service do the work for you! This service includes a website as well as Specialists available 24 hours a day/7 days a week - whenever the need arises. Check it out at: www.worklife4you.com, and enter the following information: Agency Code: GSFC; password: last name + last 4 digits of SSN. Don't worry - the site is very secure & your information remains confidential. Please contact Khrista White at X6-9059, khrista.n.white@nasa.gov, or <http://ohr.gsfc.nasa.gov/family/home.htm> for assistance.

Register for the NASA Aeronautics and Space Database

The NASA Aeronautics and Space Database is the Scientific and Technical Information (STI) Programs new repository for documents relevant to NASA's mission. From your own workstation, you have free access to over 3.5 million metadata records that include citations and abstracts of NASA journal articles, technical reports, conference papers and proceedings,

preprints, theses, and other forms of STI. Content ranges from the early NACA publications to today's latest research. Innovative features include full-text images in PDF format, custom display formats, saved search capability, and on-line document and video purchase. Register for free at www.sti.nasa.gov.

Wanted: Band & Singers for free Lunchtime Concerts

Singers and bands are wanted to entertain GSFC employees for free at Lunchtime Concerts sponsored by the Goddard Employees Welfare Association (GEWA) from May through September. All performers receive an opportunity to showcase their talents and, as a token of appreciation for their services, a free lunch of their choice at the GSFC Building 21, Cafeteria. For more information, please contact Cindi Jones-Savoy, at x6-7149, email: Cynthia.A.Jones-Savoy@nasa.gov, or Tasha Davis, at x6-3243, email: Tasha.L.Davis@nasa.gov.

AirVenture Oshkosh 2004

NASA is an official exhibitor at the EAA AirVenture Oshkosh 2004, which runs July 27 - August 2 in Oshkosh, WI.

Along with special activities, AirVenture Oshkosh will again host more than 500 educational forums, seminars and workshops covering the entire spectrum of flight, as well as more than 700 exhibitors showcasing the latest innovations within the aviation industry. Daily afternoon air shows, fly-bys, evening programs and other gatherings will also be part of the celebration. This year's theme is "Launching the Next Century of Flight."

Goddard civil servant employees *with supervisory approval* may sign up to staff AirVenture by visiting the NASA Langley Research Center's on-line registration site at: <http://oea.larc.nasa.gov/airventure/>

Dateline Newsletter

The Dateline Newsletter is a daily bulletin that highlights current GSFC events and announcements. The newsletter is e-mailed daily to subscribers only. To subscribe to Dateline send an e-mail message to Majordomo@listserv.gsfc.nasa.gov in the text area type subscribe dateline_daily_copy and within a few days you should start receiving dateline. To submit announcements direct e-mails to dateline@listserv.gsfc.nasa.gov For more information, contact Tara Holby at x6-8955.

Call For Mentors: Apprenticeship Program and Mentor/Mentee Program

Mentors are needed for the Summer High School Apprenticeship Research Program (NASA SHARP). Students will have the opportunity to work with a scientist, engineer or technologist conducting meaningful research to enrich and develop oral and written communications, computer and leadership skills, experience in preparing written final reports and developing abstracts of research. If you are interested in mentoring a SHARP student this summer contact Charles Mercer at cmercer@pop100.gsfc.nasa.gov or Mrytle Brijbasi at mybrij@comcast.net.

Events

Can We Talk?

Is something on your mind? Then speak up! Come to the next "Can We Talk" discussion and tell us what you think. These informal dialogue sessions are held each month with either Center Director A.V. Diaz or Deputy Director Bill Townsend. There's no agenda, no set topics, no notes. Just an opportunity to tell the Center's leadership what's on your mind. Anyone can come. Sessions are small, no more than 20 people, and it's "first come, first serve." The discussion will be on **Friday, June 10**. To sign up, visit the Goddard Internal home page at <http://internal.gsfc.nasa.gov/canwetalk.cfm> or call the Office of Public Affairs at x6-8955.

Bring Up Baby

The Women's Advisory Committee and the Goddard Child Development Center are pleased to present the fourth of the series of "Bring up Baby" talks for parents, grandparents, uncles, aunts, godparents, and mentors to kids ages 0 – 50. All Goddard and contractors employees are invited to attend. Bring your lunch and a friend. We will provide cookies and lemonade. The next talk is entitled '*The Development Tasks of Adolescence*.'

When/Where: Thursday, June 17 from 11:30 a.m. to 12:30 p.m. in Bldg. 3 Goett Aud.

For more information, contact the Florence Tan at x4-6392.

In addition, The Women's Advisory Committee (WAC) would like to invite all Goddard women (civil servant and contractor) to WAC Women's Networking Luncheons. The luncheons provide an opportunity to meet and greet new people, as well as, share ideas and experiences. More importantly, the luncheons offer Goddard women an opportunity to relax and enjoy regular social time with other women.

The biweekly luncheons will take place the second and fourth Tuesday of every month, beginning at 11:30 a.m. The luncheon on the second Tuesday of the month will be an on site event in the Bldg. 1 cafeteria, while the luncheon on the fourth Tuesday of the month will be an off site event, location changes every month. For updated information about luncheon locations, visit the WAC web site at <http://eeo.gsfc.nasa.gov/wac/> and click on upcoming events. There is no commitment involved at all, participants can come when they can and stay as long as they want.

Earth Science Technology Conference

NASA's Earth Science Technology Office (ESTO) is presenting the fourth annual Earth Science Technology Conference in Palo Alto, Calif., June 22-24. The conference will showcase a wide array of technology research related to NASA Earth science efforts. Attendees will encounter new developments in information systems, computing, instruments, and component technologies and learn about the vision and future needs for Earth science technology.

To register, examine abstracts and presenters, and preview the venue and schedule, log onto the conference homepage at <http://esto.nasa.gov/conferences/estc2004/>

Director's Colloquium

Who: Ms. Rosalind (Roz) Jeffries, president of Performance Enhancement Group, Inc. and author of *101 Recognition Secrets: Tools for Motivating and Recognizing Today's Workforce* is a forerunner in the field of employee recognition. She will talk about the organizational and individual benefits derived from unleashing the power of recognition at Goddard and how each of us can contribute to creating a culture of recognition. Her client list is impressive, ranging from Ben & Jerry's, to Georgetown University Hospital, the National Institutes of Health, and the CIA. Her book and workshops are a culmination of years of research and field study with over 20,000 managers and employees.

When/Where: Wednesday, June 23 at 10 a.m. in the bldg 3 Goett auditorium

For more information, visit: <http://centerdircolloq.gsfc.nasa.gov/>

Mark Your Calendars For: Goddard's Community Day

Explore NASA's Goddard and Beyond

Saturday, July 31, 2004 at 10 a.m. to 6 p.m.

Bring your family and visit the Goddard Space Flight Center for a free day of exploration and fun for all ages!

- ❑ Live Entertainment and Delicious Food from Local Restaurants
- ❑ Real-Time Rocket and Wallops Balloon Demos
- ❑ Exciting tours of the facilities on the Goddard Campus
- ❑ Explore Earth and Space with Exhibits and Presentation by NASA Scientists and Engineers

Continued on page 31

- ❑ Enjoy Hands-on and Interactive Educational Opportunities For the Kids
- ❑ Learn about Goddard Student Programs and possible job opportunities

Learn All About What's Happening In Your Own Backyard!

Upcoming Training

IDP Workshops

In the IDP Workshop for Supervisors and the IDP Workshop for Employees, many questions have come up around the IDP process. Under OHR's career development page, there is a list of Frequently Asked Questions (FAQs) that have come from both supervisors and employees. These questions have been answered by OHR staff and legal counsel. Please take time to review these FAQs at <http://ohr.gsfc.nasa.gov/DevGuide/idp.htm>. Questions? Please contact Tracey White. To view all of the upcoming training courses, visit: <http://ohr.gsfc.nasa.gov/DevGuide/Calendar/home.htm>

Resume Writing Training Classes

All the classes scheduled for Greenbelt will be held in building 1 room 006.

July 15	10:00 - 11:30 a.m.
Sept 15	1:00 - 2:30 p.m.

Classes will also be offered at WFF in the MEC room 208. The dates and times are as follows:

August 19	9:00 - 10:30 a.m.
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If you need any additional information, please contact Sherri Tepper 6-5170. No training form required.

Individual Development Planning (IDP) for Employees

June 8, 2004; 9:30 a.m. - 11:30 a.m.

For additional information please visit <http://ohrcoursecatalog.gsfc.nasa.gov/search/description.cfm?course=842> or contact Tracey White at x6-7823 or Tracey.C.White.1@gsfc.nasa.gov to enroll.

Job Search Strategies - June 15, 2004;

1-2 p.m.
For additional information please visit <http://ohrcoursecatalog.gsfc.nasa.gov/search/description.cfm?course=938> or contact Tracey White at x6-7823 or Tracey.C.White.1@gsfc.nasa.gov to enroll

One-On-One Career Coaching...

Whether you are contemplating a career change, in need of assistance with resume writing, interviewing techniques, or trying to develop an Individual Development Plan (IDP), a career coach can help. To schedule a confidential one-on-one appointment, contact Tracey White at x6-7823. This service is provided to civil servants only.

Think BIG! The NASA GSFC/WFF Chapter of Blacks in Government (BIG) welcomes new members and visitors to join us for our monthly General Meeting. Meetings are held **the third Wednesday of each month** from 11:30 a.m. – 1p.m. Individuals who are interested in attending our Membership Meetings should contact Larry Phillips, Chapter President at (6-6035 or 6-4401) or Anetra Tucker (6-9708) to have his/her name added onto the mailing list.

For more information, please contact the following BIG Members:

Joyce Brooks, BIG GSFC/WFF 1st Vice President, at GSFC, 6-5912
Regina Waters, BIG GSFC/WFF 2nd Vice President, at Wallops Flight Facility, 7-1337
Willis Jenkins, BIG GSFC/WFF Executive Vice President, at NASA Headquarters, (202) 358-1285

First Call for Papers-7th Mil/Aerospace Applications of Programmable Logic Devices International Conference (MAPLD)

This Conference is hosted by the NASA Office of Logic Design

What: The 7th annual MAPLD International Conference's extensive program will include presentations, seminars, workshops, and exhibits on programmable logic devices and technologies, digital engineering, and related fields for military and aerospace applications.

Devices, technologies, logic design, flight applications, fault tolerance, usage, reliability, radiation susceptibility, and encryption applications of programmable devices, processors, and adaptive computing systems in military and aerospace systems are among the subjects for the conference.

This event promises to be exciting with presentations by government, industry, and academia, including talks by distinguished invited speakers. This conference is open to US and foreign participation and is not classified. For related information, please see the NASA Office of Logic Design Web Site (<http://klabs.org>).

This year, there will be special emphasis on the following themes:

- "War Stories" and Lessons Learned
- Programmable Logic and Obsolescence Issues
- Implementing high performance, high reliability processor cores.
- Logic design evaluation, design guidelines, and recommendations.
- Verification methods for radiation hardness and fault tolerance.
- Applications such as MIL-STD interfaces, UAV's, and controllers.
- Automated Checkers for low reliability design constructs.
- PLD tools/methods that we need but vendors don't supply.

When/Where: September 8-10, 2004 at the Ronald Reagan Building and International Trade Center in Washington, D.C.

For more information, visit the Conference home page at: <http://klabs.org/mapld04>