



MARSHALL STAR

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June 29, 2006

Space Shuttle STS-121 Mission

Continuing on-orbit testing and station maintenance

The crew of Space Shuttle Discovery will continue to test new equipment and procedures during the STS-121 mission that increase the safety of space shuttles. The flight to the International Space Station also will deliver critical supplies and cargo to the complex for repair and future expansion of the outpost.

The focus of the mission is to continue analysis of safety improvements that debuted on the first Return to Flight mission, STS-114, flown in 2005, and build upon those tests. This mission will continue testing the external tank designs and processes that minimize potentially damaging debris during launch, ground and flight camera systems to observe the shuttle environment during launch and on orbit, and techniques for in-flight inspection and repair of the shuttle's thermal protection system, or heat shield.

The mission's top priority is to inspect all of the reinforced carbon-carbon heat protection material on Discovery's wing leading edge panels and to downlink the data for evaluation on the ground. Second on the list of priorities is inspecting all of the shuttle's silicon-based tiles.

Two spacewalks are planned. They are devoted to maintenance of the space station and additional testing of heat shield inspection and repair materials, tools and techniques.

During the flight, mission managers expect to evaluate the high probability of shuttle consumables supporting an extra day for the



mission. If an extra day is available, the crew and flight control team are training for a third spacewalk that focuses on reinforced carbon-carbon inspection and repair.

Discovery will be docked to the International Space Station for the majority of the mission. STS-121 is designated Utilization and Logistics Flight-1 in the space station assembly sequence. The mission was added to the sequence as an additional mission to complete Return to Flight on-orbit testing before resuming major assembly of the space station. The mission's objectives for the station will be maintenance work and the delivery of equipment, supplies, experiments and spare parts in support of operations and future station assembly missions.

Discovery will deliver a third crew member to live on board the station. It will be the first time a

three-person crew resides on station for a long duration since the Expedition 6 crew returned to Earth May 4, 2003, in Kazakhstan. Without the space shuttle to ferry equipment to the station after the Columbia accident, only two people could be supported on board until the necessary provisions were in place. To help deliver tons of supplies, Discovery will carry an Italian-built pressurized cargo container called Leonardo in its cargo bay.

For more information about Space Shuttle Discovery's STS-121 mission, visit www.nasa.gov/shuttle.

See pages 3-4 for more on the STS-121 mission

Marshall's knowledge of science will enable future exploration decisions

Recently, I had the opportunity to give a presentation about Marshall's science work at the Science Mission Directorate monthly meeting at NASA Headquarters. It was a great opportunity to highlight the center's contributions to the agency, because science at Marshall is an important part of who we are.

We have made numerous contributions to the agency through our work in the sciences, which dates back to Dr. von Braun and Dr. Ernst Stuhlinger, as a means to gain the most value from applications of the space transportation systems we develop. For over 45 years, we have done



David King

significant hardware development, scientific research and program/project management on many of NASA's major scientific spacecraft. The list includes Skylab, the High Energy Astronomy Observatory series, the Hubble Space Telescope, the Compton Gamma Ray Observatory and the Chandra X-ray Observatory. Creating these science platforms enables discovery, which in turn has literally changed what we thought we knew about the universe.

We don't do every kind of science that NASA is involved in, but where we are engaged, we help the agency achieve its goals. Our science knowledge will enable future decisions for exploration:

where to go and, once there, how to accomplish our objectives. A great example of how science and exploration intersect is with our current work studying lunar dust. Our original studies of dust were related to the scientific understanding of dust grains in the interstellar medium: how they behave, how they become electrically charged and how the physics of these dust grains influences the formation of stars in the galaxy. But we can apply directly the physical understanding and research avenues of how dust grains charge in the interstellar medium to how different types of lunar dust grains charge and behave in the lunar environment. The need to fully understand the impact of these tiny particles on our hardware is vital for returning to the moon. A miniscule buildup of lunar dust could potentially damage or even destroy hardware, which would result in a significant setback to achieving our goal of long-duration stays on the moon.

At the National Space Symposium, held in Colorado Springs, Colo., in April, Mike Griffin shared that reaping the benefits of space exploration will require deeper and more creative thinking, which translates into identifying opportunities to bring together the "two cultures" of science and exploration. Marshall's track record shows that we have been cultivating this approach for some time, and we will continue to be proactive and search for ways to bring science and exploration together.

The Vision will require that we put our best thinking on the table, and we are ready for this historic opportunity. We are making progress toward the development of the next set of launch vehicles, the Crew Launch Vehicle and the Cargo Launch Vehicle, to replace the shuttle. Additionally, we are establishing the Lunar Precursor and Robotic Program Office and the Lunar Lander Project Office.

There is much work to be done and many challenges ahead. I have confidence in the Marshall team and know we'll work very hard to enable America's return to the moon.

David A. King

Director, Marshall Space Flight Center

'Focus on Marshall' looks at X-ray Calibration Facility and Test Cell 103

By Lori Meggs

"Focus on Marshall" continues to spotlight Marshall's people and their work with the newest edition airing on Marshall TV beginning July 6.

This month's program features a segment on the Marshall Center's X-ray Calibration Facility — the world's largest, most advanced laboratory for simulating X-ray emissions from distant celestial objects. This facility produces a cryogenic, space-like environment in which components related to X-ray, visible and infrared telescope imaging are tested, and the quality of their performance in space is predicted. The calibration facility includes four buildings within one-third square mile.

The other segment features a test cell in the East Test area where Marshall engineers are preparing to conduct igniter tests for the J-2X upper stage engine for the Crew Launch Vehicle. A vacuum chamber in Test Cell 103 is used to simulate the sub-atmospheric pressure conditions required to validate the igniter operation at high altitude.

"Focus on Marshall" airs on Marshall TV and is viewable live on Desktop TV the first and third Tuesday and Thursday of each month at 11 a.m., noon and 1 p.m. It also will be posted on Inside Marshall and the Marshall home page within the NASA portal Web site.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Meet the STS-121 crew

The STS-121 crew were first named in December 2003 after the flight was added to the space shuttle schedule to help accommodate the growing list of requirements originally assigned to NASA's Return to Flight mission, STS-114, which flew in 2005. The initial crew included Commander Steven W. Lindsey, an Air Force colonel; Pilot Mark E. Kelly, a Navy commander; and mission specialists Carlos I. Noriega and Michael E. Fossum.

Noriega was replaced by Piers J. Sellers in July 2004 because of a temporary medical condition. Mission specialists Lisa M. Nowak, a Navy commander, and Stephanie D. Wilson were added to the flight in November 2004. The mission was declared a crew rotation flight when NASA determined that returning to a three-person crew on board the International Space Station would be possible following the first two shuttle supply missions. Thomas Reiter was added to the flight in July 2005. Here's a brief look at each crew member:

Mission Specialist Stephanie Wilson: Wilson is making her first flight into space. She will serve as the overall lead for transferring supplies from the shuttle's cargo module to the station. She also will serve as a robotic arm operator, using the space station robotic arm to install the Leonardo cargo module onto the station and to hand off the boom to the shuttle arm. She also will use the orbiter boom sensor system to inspect Discovery's heat shield. Prior to the spacewalks, she will assist with suit-up of the spacewalkers. During rendezvous, docking and undocking, she will manage the hand-held laser and the orbiter docking system. Wilson will be seated on the middeck for launch and the flight deck for landing.

Mission Specialist Piers Sellers: A veteran of one spaceflight, Sellers' main objective is to lead and perform two to three spacewalks, as EV1, along with his spacewalking colleague,

Michael Fossum. During the spacewalks, they will test shuttle heat shield inspection and repair techniques. This includes evaluation of the robotic boom extension as a work platform and testing of repair materials and hardware for damaged heat shield components. He also will continue space station assembly by replacing failed hardware and installing spare parts on the outside of the complex. Sellers will be seated on the middeck for launch and landing.

International Space Station Flight Engineer Thomas Reiter:

Representing the European Space Agency, Reiter will lead the transfer of supplies from the shuttle's cargo module to the station during the spacewalks and assist with suit-up prior to the spacewalks. He is conducting his second long-duration spaceflight mission. He spent 179 days in space from 1995 to 1996 on a mission to the Russian Mir space station, during which he conducted two spacewalks and about 40 European scientific experiments. Reiter is the first ESA astronaut to live on board the space station for a long-term mission. He will work on the station as part of an agreement between the Russian Federal Space Agency and the European Space Agency. Reiter will be on the middeck for launch and remain on the space station until the STS-116 space shuttle mission or a Soyuz mission.

Commander Steven Lindsey: Lindsey is a veteran of three spaceflights and a second-time commander who has overall

responsibility for the on-orbit execution of the mission, orbiter systems operations and flight operations including landing the orbiter. In addition, he will fly the shuttle in a procedure called the rendezvous pitch maneuver while Discovery is 600 feet below the station before docking to



From left, International Space Station Flight Engineer Thomas Reiter, Mission Specialist Michael Fossum, Mission Specialist Piers Sellers, Commander Steven Lindsey, Pilot Mark Kelly, Mission Specialist Stephanie Wilson and Mission Specialist Lisa Nowak

See Crew on page 4

External tank changes for the STS-121 mission

Marshall Center workers have spent countless hours during the last year preparing for the next shuttle mission. Many have worked long hours, and engineers have tested, analyzed and studied test results in an attempt to better understand foam loss on the shuttle's external fuel tank during the STS-114 mission in July 2005.

"The entire center has been involved in getting the external tank ready for STS-121," said Robert Lightfoot, manager of the Shuttle Propulsion Office. He

commended the Engineering Directorate, Safety and Mission Assurance Directorate and the shuttle's External Tank and Propulsion Systems Engineering and Integration Project Offices for their spirit of teamwork and tenacity in working through many issues.

Lightfoot expressed appreciation to the entire Marshall organization for its effort to ensure work at the Michoud Assembly Facility in New Orleans continued with as little impact as possible following Hurricane Katrina.

"Clearly, there are a lot of unsung heroes from every part of the Marshall team who have enabled us to get to this point," Lightfoot said.

For the first time, the external tank will fly without protuberance air load ramps, which are manually sprayed wedge-shaped layers of foam along the pressurization lines and cable tray on the side of the tank.

For complete details of changes to the external tank, visit http://www.nasa.gov/centers/marshall/pdf/150034main_Shuttle_ET-119_FS.pdf.

Crew

Continued from page 4

enable the station crew to photograph the orbiter's heat shield. Lindsey will then dock Discovery to the station. He also will be heavily involved in inspections of Discovery's heat shield and transferring cargo to and from the shuttle.

Pilot Mark Kelly: Kelly is flying for the second time and will be responsible for systems operations and assisting in the rendezvous and docking to the International Space Station. He also will serve as the intravehicular activity crewmember, helping to suit up and choreograph spacewalkers Piers Sellers and Michael Fossum during their spacewalks. He will be heavily involved in inspections of Discovery's heat shield and transferring cargo to and from the shuttle. Kelly will undock Discovery from the station at the end of the mission.

Mission Specialist 1 Michael Fossum: Making his first venture into space, Fossum will perform two or three spacewalks, as EV2, with his colleague Piers Sellers, to test shuttle heat shield inspection and repair techniques. Testing will include evaluating the robotic boom extension as a work platform and assessing

repair materials and hardware for damaged shuttle heat shield components. He also will continue station assembly by replacing failed hardware and installing spare parts on the outside of the complex. Fossum will assist with inspections of Discovery's heat shield. He will be seated on the flight deck for launch and the middeck for landing.

Mission Specialist Lisa Nowak: Making her first flight into space, Nowak will serve as the flight engineer on STS-121, adding a second set of eyes on orbiter systems for the commander and pilot on the flight deck during launch and landing. As a robotic arm operator, she will maneuver her crewmates and hardware during the two or three spacewalks, using the shuttle arm on the first and the station arm for the second and third. She also will perform heat shield inspections with the orbiter boom sensor system, and use the station robotic arm to handoff the boom to the shuttle arm. During rendezvous, docking and underdocking, she will manage computers, lasers, cameras and the orbiter docking system.

Biographical sketches with detailed background are available at <http://www.jsc.nasa.gov/Bios/> or <http://www.esa.int/esaHS/astonauts.html>.

Obituaries

Shirley Sanford Butler, 66, of Woodville died May 13. She retired from the Marshall Center in 1999 as a management support assistant. She is survived by two sons, Steven S. Butler and John T. Butler; and one sister, Glenda Platt.

Charles Earle Hall, 78, of Huntsville died May 6. He retired from the Marshall Center in 1993 as an aerospace engineer in flight control and dynamics. He is survived by his wife, Elizabeth M. Hall; and three sons, Lyman Charles Hall of Austin, Texas, Gerald Kimber White of Norton, Mass., and Andrew Grant White of Ridgfield, Conn.

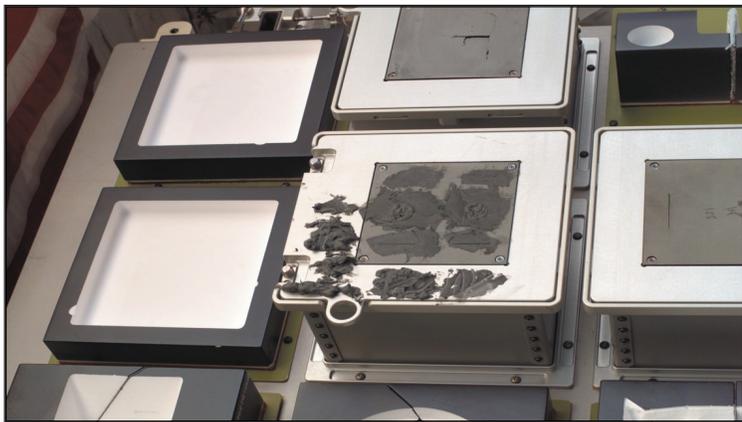
Key repair materials supplier visits Marshall team

By Lori Meggs

As the Space Shuttle Discovery prepares to launch on its next mission to the International Space Station, a Marshall-developed experimental space shuttle wing repair material is also preparing for its second flight to orbit.

The space shuttle wing repair material, dubbed "NOAX" for non-oxide adhesive experiment, first flew into orbit with the Return to Flight space shuttle mission STS-114 in July 2005. The repair kit was successfully tested in the cargo bay of Space Shuttle Discovery by astronaut Stephen Robinson. The kit is currently an unscheduled Detailed Task Objective during the next space shuttle mission STS-121.

"STS-114 helped prove that the use of the paste-like sealant NOAX to repair small damage to the shuttle's wing leading edge was entirely feasible for a crewmember to accomplish on orbit," said NOAX project lead Bill McMahon of Marshall's Materials and Processes Laboratory. "However, the visual indicators of a good repair on orbit varied from what was expected, making it hard for the crewmember to determine when the NOAX was in the ideal state to affect a repair of optimal integrity. Thus, the main focus of STS-121 will be to work in our test objectives, which were not completed during the first flight."



A reinforced carbon/carbon specimen was repaired with the non-oxide adhesive experiment, or NOAX material by astronaut Stephen Robinson in the cargo bay of Space Shuttle Discovery during STS-114, in July 2005.

NOAX was manufactured in the National Center for Advanced Manufacturing located in building 4707 at the Marshall Center, a facility managed by the Materials and Processes Laboratory of the Engineering Directorate. The

material is composed of three powder-like substances, silicon carbide, zirconium diboride and yttrium oxide, which are provided by the vendor H.C. Starck Inc. in Newton, Mass.

H.C. Starck Inc. representative Robert Jensen recently visited the Marshall Center to discuss how the development of the repair technique was progressing. "H.C. Starck is proud to be a partner in this important and amazing endeavor," said Jensen. "We're here to help identify ways that we can work with NASA and its contractors to provide future shuttle crews with the most consistent on-orbit repair material possible. There's a lot riding on this."

Lisa Carr of Safety and Mission Assurance Directorate says having a face-to-face liaison is

important in the next steps in NOAX development. "H.C. Starck normally works with industrial customers who deal in much larger quantities," said Carr. "The small scale of NOAX production makes us a bit more sensitive to minor variations in their powders. NOAX is an impressive material, and H.C. Starck came here to help us understand the level of raw material variability we are likely to see over the life of the project so we can make it even better."

During on-orbit testing of the NOAX repair kit, astronauts will use a dispenser similar to a caulk-gun to fill any cracks in a test article. Then, a trowel and sponge-like tools similar to those sold at most hardware stores, will be used to work the NOAX into the cracks. As the shuttle reaches the extreme temperatures of reentry — about 3,000 degrees Fahrenheit — the material cures and becomes a ceramic.

ATK Inc., based in Edina, Minn., is Marshall's prime contractor for the production of the NOAX materials, and Starfire Systems of Malta, N.Y., provides pre-ceramic polymer materials for the production processes.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.



Emmett Given/MSFC

From left, Marshall engineer Mike Effinger, H.C. Starck Inc. representative Robert Jensen and ATK lead chemist for the NOAX project Richard Morgan discuss the processing and controls used in the production of the materials for the leading edge of the wings space shuttle repair kit.

Twenty-nine selected for Space Flight Awareness honors

Twenty-nine Marshall Center employees and contractors are being honored for their significant contributions to the space program with Space Flight Awareness awards. The honorees are attending a special

recognition event in Orlando, Fla., on June 28 to July 1. There will be an awards ceremony in their honor, and they will tour Kennedy Space Center and view the launch of STS-121 scheduled for July 1.



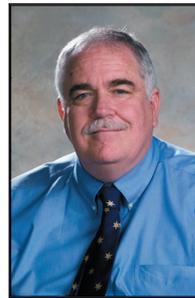
Anne Bauer
TBE/Science & Mission
Systems Office



James Len Bell
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Office



Linda M. Carpenter
Office of Center
Operations



Kyle Daniel
Safety & Mission
Assurance Directorate



Stephanie J. Elliott
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Projects Office



Sandra George
SAIC/Office of the
Chief Information Officer



David G. Goggin
Sverdrup/Shuttle
Propulsion Office



Jeff Hagopian
Science & Mission
Systems Office



Michael R. Hannan
Engineering Directorate



Donald L. Harris
Engineering Directorate



Monica D. Heidelberg
Office of Procurement



Jack Hengel
Shuttle Propulsion
Office



Timothy Horvath
Engineering Directorate



Jerrilynn G. Huffman
EG&G/Office of Center
Operations



Ronald W. Kiker
CIS/Protective Services
Office



John R. Koenig
Southern Research
Institute



Steve Lambing
Office of Strategic Analysis
& Communications



Yohon Lo
HEI/Safety & Mission
Assurance Directorate



Preston B. McGill
Engineering Directorate



Kathy H. Moorhead
COLSA/Science &
Mission Systems Office



David M. O'Dell
Engineering Directorate



William Ondocsin
Shuttle Propulsion
Office



Michael E. Prince
Engineering Directorate



Elizabeth C. Shelton
Office of the Director

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Space Flight Awareness honors continued



James P. Sieja
Engineering Directorate



Regina Z. Smith
LSSI/Office of Center
Operations



Rhonda Stricklin
Office of the Chief
Financial Officer



Diedra A. Williams
Office of Human Capital



Ronald Winkler
Science & Mission
Systems Office

NASA's Exploration management team strikes historic pose



NASA/jeff Caplan

In a pose reminiscent of a famous photograph from the Apollo era, modern day NASA Exploration managers hold a wind tunnel model of NASA's next generation spacecraft.

Deputy Associate Administrator of Exploration Systems Doug Cooke, left, points to the Launch Abort System on a model of the Crew Launch Vehicle during a tour of NASA's Langley Research Center in Hampton, Va., June 7. With Cooke are, from left, Crew Exploration Vehicle Project Manager Skip Hatfield; Crew Launch Vehicle Project Manager Steve Cook; Langley

Exploration and Flight Projects Head John Herrin; and Constellation Program Manager Jeff Hanley.

Members of the Exploration management team are visiting each NASA center as part of the Constellation Program "roll out" of work assignments. NASA's Constellation Program is responsible for developing the crew exploration and launch vehicles and related exploration systems in support of the Vision for Space Exploration — the agency's plan to return humans to the moon and travel to Mars and destinations beyond.

'Anything can be accomplished'

An interview with Charles Scales, NASA associate administrator for the Office of Institutions and Management

Until recently, Charles Scales served as the Marshall Center's deputy director in the Office of Center Operations. He's now accepted the challenge of working at NASA Headquarters as the associate administrator for the Office of Institutions and Management.

In his new position, Scales manages the operational and management support activities across NASA, including the following agency offices: Diversity and Equal Opportunity, Small and Disadvantaged Business Utilization, Procurement, Human Capital Management, Infrastructure and Administration, and the NASA Shared Services Center at Stennis Space Center, Miss. He also ensures the agency workforce, infrastructure and facility capabilities are working together to support NASA's long-range needs.

Scales began his more than 33-year NASA career as a cooperative education student at Marshall in 1973. Along the way, he's earned numerous awards including the NASA Exceptional Service Medal for significant sustained performance and the Silver Snoopy award — the highest award bestowed by astronauts for outstanding contributions to flight safety and mission success. He also has served as director of the Center Operations

Directorate at NASA's Glenn Research Center in Cleveland. He was inducted into the Alabama A&M University Hall of Fame in 2005.

What is the role of the Office of Institutions and Management for the agency?

I&M, as the office is called, performs critical mission support roles in helping the agency execute current programs and plan for future programs. Our goal is to provide consistency and uniformity across the agency's vast array of institutional capabilities and services. Working with the mission directorates, we help provide the workforce competencies and institutional capabilities required to meet NASA's strategic needs.

How does the Office of Institutions and Management affect the average NASA employee?

It's impossible for NASA employees to go one minute per day without being affected by the support provided by I&M. Our teams of professionals hire and provide training for our employees, procure services and equipment, manage facilities, real property and environmental services, work with our

small and disadvantaged business partners, and work to provide a workplace that is free of discrimination. Also, under I&M, the NASA Shared Services Center is providing many of the daily transaction services for our employees.

What is the biggest challenge that you expect in your new role managing such diverse agency offices and programs?

The biggest challenge may be keeping up with the high-performance team that I'm joining. But it is a good thing to be joining a really high-performing team that is capable of meeting any challenge.

What is the key, in your opinion, to managing these agency offices and programs and how do you plan to implement it?

The 2006 NASA Strategic Plan lays out the agency's six strategic goals. I believe the key to leading I&M's diverse portfolio of functions is to make sure what we do is aligned in a way that will give us the best chance to effectively and efficiently help achieve each of these goals.

Note: *The agency's strategic plan is available at http://www.nasa.gov/pdf/142302main_2006_NASA_Strategic_Plan.pdf.*

Are there any specific initiatives you intend to undertake?

Since I don't report to headquarters until the end of June and haven't had much time to spend with the I&M team, it is too early to talk about specific initiatives. However, any initiatives we undertake will be aligned with the agency's strategic goals.

You have been very successful in your NASA career. What advice do you have for other professionals striving for career success?

Study successful people and focus on the job you have, not the one you want.



Charles Scales

Doug Stoffer/MSFC

See Scales on page 10

Marshall technology team aids water purification effort in Iraq

By Rick Smith

A team of Marshall Center engineers, finalizing a state-of-the-art water recycling system for the International Space Station, recently had an opportunity to contribute to a related project — one that will change life forever for a remote village in Iraq.

Two years ago, the pump failed for the deep-water well in the northern Iraq village of Kendala, leaving residents without access to clean water. The population quickly dwindled from more than 1,000 residents to just 150. Those who stayed were forced to haul water from nearby creeks muddied by dirty livestock. They also dug crude, shallow wells, straining the water through fabric to remove dirt and debris.

The village's plight drew the attention of Concern For Kids, a non-profit organization in Lawrenceville, Ga., that has provided aid in

Iraq since 1992. Recognizing the need for cutting-edge technology to save lives and revive the ailing community, Todd Harrison, president of Concern For Kids' board of directors, turned to his sister Robyn Carrasquillo, engineering manager for the Environmental Control and Life Support System, or ECLSS, project at Marshall.

The system is designed to recycle air and water on the space station, dramatically reducing the need for costly resupply missions from Earth. The system's water processor, developed by Hamilton Sundstrand Space Systems of Windsor Locks, Conn., is undergoing final preparation at Marshall before it is flown to space and installed on the station.

Familiar with his sister's work, Harrison knew NASA engineers at Marshall had developed many technologies for water purification in the 1970s and 1980s for the Space Shuttle Program and the space station. So he posed a challenge to Carrasquillo and her team: help via e-mail to install and test a new, ground-based water purification

system to improve the quality of life for Iraqis struggling to rebuild their village and country.

The water filtration and purification system installed in Kendala was designed and manufactured by Water Security Corporation of Reno, Nev. The company uses the same Space Certified Technology developed for NASA and used on the space shuttle. The system uses iodine to purify water from streams, rivers, wells and swamps to be used as drinking water for the local population.

Early this year, volunteers installed a 2,000-liter water tank in the village and, with the help of U.S. Army Civil Affairs personnel, began trucking in fresh water. But the water needed to be cleaned and required some modification to maintain healthy iodine levels.

There were two problems with the purification unit in Kendala.

The new pump was improperly configured, and the iodine bed had dried out during transport. That's when Carrasquillo's team, half a world away, came into play. They e-mailed instructions, guiding the field team in reconfiguring the pump and rehydrating the resin bed. In short order, the team was able to deliver safe, clean drinking water to the Kendala village for the first time in two years. Now, Concern For Kids hopes to provide additional purification units for other villages.



A tribal leader in the village of Kendala, Iraq, samples fresh water from a new well-water purification system. The system was installed by American volunteers with real-time e-mail support from Marshall Center engineers.

Photo courtesy of Concern For Kids

At Marshall, the ECLSS system's water processor draws ever nearer to flight, and Carrasquillo is confident the system will serve the space station well. The technology is a major leap forward in serving the needs of future space explorers on the space station, on the moon or during deep-space missions to the outer reaches of the solar system.

"Each astronaut in space requires about three gallons of water every day," Carrasquillo said. "That's far less than the 35 gallons or so used each day by the average American, but still an amount that quickly adds up, crowding our shuttles and rockets and creating prohibitive costs. We're excited to deliver a system that will change all that."

She's thrilled to have made a difference here on Earth, too. "To see our system solve a down-to-Earth problem, especially in a place where there's such a serious need — there's no greater reward than that."

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Marshall's Terrestrial and Planetary Environments team watches the winds for shuttle launch



Ryan Decker, right, an atmospheric scientist in the Marshall Center's Engineering Directorate, and Richard Leach, an engineer with Unified NASA Information Technology Services, participate in a recent shuttle Terminal Countdown Demonstration Test in the Huntsville Operations Support Center. As members of the Terrestrial and Planetary Environments team at Marshall, they are responsible for verifying the wind data used in calculating shuttle ascent steering commands and to monitor changes in the upper atmospheric winds during the countdown. This test simulation was in preparation for the July 1 launch of STS-121.

Douglas Stoffer/MSEC

Scales

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You have spent much of your life in Huntsville and working here at Marshall. What are your feelings about the center?

When you live in Huntsville "where the sky is not the limit," you are surrounded by people who believe that anything can be accomplished. The Tennessee Valley is a community of people with a "can do" attitude that attracts people with similar attributes.

As for my feelings about the Marshall Center, if you think the center's contributions to Apollo, Skylab, shuttle, space station, the Hubble and Chandra observatories, and a host of other programs and projects were something special, just keep watching, because as we say in the South, "You ain't seen nothing yet."

Jonathan Baggs, an ASRI employee in the Office of Strategic Analysis and Communications, contributed to this article.

Marshall Association announces additional scholarship call

The Marshall Association announces the call for applications for an additional college scholarship.

As a result of the recent increase in Marshall Association membership and associated funding, the association will be awarding a second scholarship.

One scholarship will be targeted for a student pursuing a technical degree in a field such as science, engineering or mathematics, and the second will be awarded to a student majoring in a non-technical field.

Last year, the association awarded two

scholarships for a combined total of \$3,200. This year's scholarships will be awarded in August.

Scholarship eligibility requirements and guidelines for application submission are available on "Inside Marshall."

SATERN rollout and training at Marshall set for July

By Shelley Miller

The Marshall Center will roll out the System for Administration, Training and Educational Resources for NASA — SATERN — on or about July 5.

A new agency-wide learning management system, SATERN offers Web-based access to training and career development resources. It consolidates previous systems — the AdminSTAR training administration system, NASA Online Registration System known as NORS and the Site for Online Learning and Resources, or SOLAR — into a single integrated system.

“What makes SATERN unique is it will provide a one-stop approach for managing training and career development activities,” said Georgann Crump, Marshall’s transition lead in the Office of Human Capital.

“Supervisors will be able to identify and manage employee training needs to help maintain a high-performing team,” said Crump. “For employees, the system will provide an efficient method for using their desktop computer as a teacher and record keeper. Overall, SATERN will be beneficial for continuously educating the Marshall workforce as we support the agency’s exploration initiatives.”

The SATERN system will enable employees to use a desktop

computer to view course catalogs, enroll in courses, schedule training and view individual training history. In addition, employees will be able to launch online courses through SATERN.

The new system also will make it easier for supervisors to guide the career development of employees. Functionality such as approving training requests, assigning training, viewing employee training reports and managing training requirements are built into the system.

Training for Marshall employees will begin July 11, with specific organization dates posted at <http://ohc.msfc.nasa.gov/docs/SATERNTrainingSchedule.pdf>. Currently, supervisors and training coordinators (formerly known as liaisons) are being trained on the system.

The Office of Human Capital encourages Marshall employees to access the SATERN tutorial at <https://satern.nasa.gov/customcontent/nonscom/tutorial/index.htm> before the rollout. Familiarity with the system will ensure a smooth transition.

For more information on SATERN and how it applies to Marshall employees, go to <http://ohc.msfc.nasa.gov/>.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue is 4:30 p.m. Thursday.

Miscellaneous

Trek 4300 mountain bike, \$200; weights and weight bench \$100; treadmill, \$50. 508-6840
Michelin MX4 radial tire, 215/60R 17, 8/32" tread, no defects/plugs, \$20. 256-828-1234
Radio controlled model plane, \$40. 729-8020
Aluminum boat, 15', 25hp Johnson, trailer, electronics, \$1,250. 430-4729/Brian
Two large framed prints: "Sunday Morning in Sleepy Hollow" and "The Berry Pickers." 852-8325
King-size headboard, \$75; full-size headboard, \$50. 772-1870
Pulaski reproduction oak bedroom furniture: chest & dresser w/mirrors, two nightstands, \$500. 468-6016
Household and baby items: washer, dryer, oak pedestal table w/chairs, wood entertainment cabinets. 880-9025
Murray riding mower, 46", 18hp, runs well, \$250. 256-722-0997
Custom built smoker, 250 gallon tank on 14' trailer, two wooden storage boxes, \$3,500. 520-2327

New poker table w/chips, still in box, \$60. 722-9989
Daniel Moore Alabama football print "The Winning Connection," signed and numbered, professionally framed, \$225. 423-4217
Trampoline, 14' diameter, \$100. 830-2806
2001 Kenmore over-the-range microwave, installed but never used, white, turntable, exhaust fan. 256-503-7060
Elliptical exerciser, \$50. 881-3612
New photo printer All-in-One, \$59; new 17" CRT monitor, \$53; MemoryStick 1GB, \$48. 655-1986
Tony Little's Gazelle exercise machine, w/3 levels of resistance, heart rate monitor, work-out videos, \$250. 457-3744
Altec Lansing 604E 15" recording studio monitor speakers and enclosures, \$425. 256-355-6525
Garmin GPS V, City Select software version 7 w/full unlock, best offer. 656-7997
Golf clubs, men's left handed, 3 woods, 7 irons, 2 wedges, putter, no bag, \$250. 882-3983
Computer desk, \$100; Craftsman workbench, new in box, \$300. 776-9165
Whirlpool dishwasher, \$50; Frigidaire drop-in range/oven, \$75; both white, less than 10 yrs. old. 256-682-3777
Dagger Medieval white water kayak, \$200. 348-8640
Steely Dan/Michael McDonald tickets, Nashville Starwood, July 10, reserved seats, \$130 for pair. 651-6394
Husky mix puppies, 3 girls, 1 boy, blue eyes, born 1/22/06, all shots, \$35 each. 714-6347
Two plots, Huntsville Memory Gardens, \$2,000; American Fostoria punch bowl, \$185; knife collector's case, \$40. 256-881-4067
iPAQ 3835 hand-held PC, Windows Mobile OS, USB cradle, charger, stylus, software, manual, \$130. 318-2158

Vehicles

1984 Bassboat ProCraft 19', Evinrude XP150, 2-depth finders, 12-24 trolling motor - \$6500 0B0. 837-9739
2002 Honda TRX 300 EX, Sportrax, garage kept, many accessories, \$3,250. 852-2201
1998 Chevrolet Cavalier, 4-cylinder, burgundy, cruise, keyless, A/C, all power, CD/radio, 153K miles, good tires, \$1,790. 256-603-3558
2003 VW Beetle GLS convertible, silver w/gray leather interior, 64K miles, new tires, \$16,500. 256-566-0917
2005 Silverado LS, 1.6K miles, \$20,500. 586-2994
2003 Honda Accord EX coupe, gray w/black leather interior, \$16,900. 721-1234/Nancy
1994 Chevrolet pickup, 350, maroon, 20" chrome wheels, leather, 132K miles, \$6,500. 931-438-1730
2000 Chevy Silverado 2500, 4x4, extended cab, Gray, leather interior, 79K miles, loaded, \$15,500. 679-8485
1995 Cadillac DeVille Concours, black, \$2,300; 1996 Cadillac DeVille, hunter green, \$3,600. 256-520-2802/Ron
2003 Harley Sportster 1200XLC, 100th Anniversary Gold Key Edition, 6.3K miles, extra chrome, \$8,900. 256-658-6565
2005 Kawasaki Ninja 250-F19, 4.5K miles, blue, warranty, \$2,700. 256-503-3727
2001 Toyota Tundra extended cab, 35K miles, bed cover, alloy wheels, blue, \$15,900. 658-8233

Free

Two tickets to Pepsi 400 in Daytona July 1. 256-431-7591

Found

Pair of men's glasses in lower East parking lot of Bldg. 4203. Call 544-1846 to claim/identify.

Marshall's Steve Cook receives AIAA Holger Toftoy Award for Outstanding Technical Management

By Sheri Bechtel

Steve Cook, director of NASA's Exploration Launch Projects Office at the Marshall Center, has been honored by the Alabama-Mississippi section of the American Institute of Aeronautics and Astronautics for his contributions to science, aerospace engineering and technical management.

Cook received the 2005-2006 Holger Toftoy Award at a recent awards banquet and ceremony in Huntsville. Named for the late U.S. Army Maj. Gen. Holger Toftoy, former deputy commanding general of the Army Ordnance Missile Command at Redstone Arsenal, the award recognizes outstanding technical management by a section member in aeronautics and astronautics.

The American Institute of Aeronautics and Astronautics is the world's largest professional society devoted to the advancement of aviation, space and defense, and has more than 1,000 members in Alabama and Mississippi.

A native of Bloomington, Minn., Cook was named director of

the Exploration Launch Projects Office at Marshall in 2005. He manages one of NASA's key exploration initiatives — designing and developing the agency's new launch vehicle systems that will lift explorers and cargo to space, and enable ambitious missions to the moon, Mars and destinations throughout our solar system.

These launch systems include the Crew Launch Vehicle, which will carry the Crew Exploration Vehicle to space, and the Cargo Launch Vehicle, which will transport the Lunar Surface Access Module and heavy cargo and materials with its Earth Departure Stage. Together, these two launch vehicle systems will position the nation to further explore the moon in preparation for the first human trips to Mars.

Previously, Cook served as a deputy lead for NASA's Exploration Systems Architecture Study. From 2005 to 2006, he also served as

deputy manager of Marshall's Space Transportation Programs and Projects Office. In addition, he has been responsible for planning and directing research, technology and development activities for future space transportation and advanced propulsion systems for more ambitious scientific exploration missions of our solar system.

Cook earned a bachelor's degree in aerospace engineering and mechanics in 1989 from the

University of Minnesota in Minneapolis. He, his wife Marqueta and their two children reside in Huntsville.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.



Marshall's Steve Cook, left, accepts the Holger Toftoy Award from the Alabama-Mississippi section of the American Institute of Aeronautics and Astronautics at the group's banquet June 1. Presenting the award is outgoing chapter president John Hall.

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