



MARSHALL STAR

Serving the Marshall Space Flight Center Community

Aug. 31, 2006

An interview with Jim Carter, director of the Office of Center Operations

We really count on the quality and experience of our folks



Doug Stoffer/MSFC

Jim Carter talks about the role of Center Operations at Marshall as he approaches retirement after serving in the organization for seven years, currently as its director.

How would you characterize the role of the Office of Center Operations in supporting the center's mission?

Obviously, the mission is the most important thing. We understand that. We know that the Office of Center Operations is here to support our customers — the rocket scientists, the engineers, the space and earth scientists — all the people at Marshall, whether it is the center director, an engineer or a budget analyst. Even visitors are our customers. We must provide a safe and healthy work environment for everyone at Marshall, and there are more than 7,500 customers we support.

How is the Office of Center Operations organized?

The Office of Center Operations consists of four major functional areas. One is the Environmental Engineering and Occupational Health Office — Allen Elliot is the manager. This area provides the center with a healthy, balanced environment. They identify, evaluate, eliminate and control occupational health hazards and each of the factors we deal with in the environment.

The second area is Facilities Management. Tim Corn is the manager, and his office includes planning, design, construction and the operations of the physical plant and facilities at Marshall. That means for the temperature in your office, the space you occupy, as well as new construction.

Ron Burns is manager of the Logistics Services area. This is the logistics and

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Shuttle Atlantis rolls back to launch pad to ride out Ernesto

By Sanda Martel

Atlantis is back on Launch Pad 39B at the Kennedy Space Center, Fla., after updated weather forecasts improved, causing NASA managers to reverse their decision earlier Tuesday, Aug. 29, to move the space shuttle from its launch pad into the Vehicle Assembly Building for protection from approaching Tropical Storm Ernesto.

Assessments of updated weather forecasts convinced shuttle managers that Atlantis would be protected from the storm at the pad at the Kennedy Center.

Depending on the effects of Ernesto on Kennedy, a new launch date for Atlantis' STS-115 mission to the International Space Station

could be set once storm damage is evaluated and work resumes at the launch pad. A launch attempt may be possible next week.

Kennedy closed ahead of the storm late Tuesday and will remain closed until at least Thursday, Aug. 31. The center's emergency operations personnel will stay on-site to monitor the storm and make initial damage assessments after it passes.

The STS-115 crew, Commander Brent Jett, Pilot Chris Ferguson, mission specialists Joe Tanner, Dan Burbank, Heide Stefanyshyn-Piper and Canadian astronaut Steve MacLean, returned to NASA's

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Marshall hurricane hunters head to Africa in search of tropical cyclones

By Sherrie Super and Rick Smith

When trying to solve a riddle, it's sometimes best to go to the source. That's why a team of atmospheric scientists from NASA and the Marshall Center has headed to Africa — to seek out the birthplace of some of the world's most powerful storms, and find new clues to solve the puzzle of how hurricanes are formed.

The scientists are seasoned hurricane hunters from the National Space Science and Technology Center in Huntsville. The research facility is a partnership between Marshall and the Alabama Space Science and Technology Alliance, a consortium of seven Alabama research universities.

The Marshall hurricane researchers are participating in the NASA African Monsoon Multidisciplinary Analyses, or NAMMA — a month-long hurricane research expedition based in the Cape Verde Islands, 350 miles off the coast of Senegal in western Africa.

The mission, which began Aug. 15, targets tropical cyclones that develop off Africa's west coast — some of which eventually reach the U.S. mainland. A tropical cyclone is the general name given to tropical depressions, storms and hurricanes.

According to Marshall atmospheric scientist Robbie Hood, a mission scientist for the study, heavy dust storms kicked up on the African continent and blown out to sea can impact the development of eastern Atlantic hurricanes. Many scientists theorize that the dry air and dust can effectively choke off the development of the storms, while others note that dust can serve as cloud condensation nuclei that can initiate cloud development. These are some of the key questions Hood and her colleagues will try to answer on Cape Verde.

Spotlight on Marshall hurricane hunters

By Sherrie Super and Rick Smith



Robbie Hood

Robbie Hood. Marshall Center atmospheric scientist Robbie Hood is serving as one of four mission scientists, co-managing the field study during the second half of the four-week mission. She also is supervising pre-mission test flights of NASA's DC-8 high-altitude research aircraft and will oversee the integration of critical research instruments into the DC-8 payload. This builds on her experience as lead mission scientist for all four NASA Convection and Moisture Experiment, or CAMEX, hurricane-study missions between 1998 and 2001, and as a mission scientist for the Tropical Cloud Systems and Processes tropical-storm study mission in 2005.

Michael Goodman. As the mission's information manager, Marshall Center researcher Michael Goodman is coordinating the collection and delivery of data acquired by sophisticated remote-sensing instruments on board the DC-8 research aircraft, along with ground radar, surface stations and balloon-borne instruments. During the first half of the mission, he served as an assistant mission scientist as needed. He also is supporting the Real-Time Mission Monitoring task, a comprehensive effort to collate collected data into a "Google Earth" visualization display.



Michael Goodman



Rich Blakeslee

Rich Blakeslee. Marshall Center atmospheric scientist Rich Blakeslee is leading the Real-Time Mission Monitoring task, which will combine observations by Earth-orbiting satellites, ground-based radar, weather balloons, forecast models and instruments on the DC-8 aircraft into a "Google Earth" visualization display. The effort will track the DC-8 aircraft's in-flight position — simultaneously integrating aircraft, satellite and surface observations with weather model predictions. The Real-Time Mission Monitor will benefit pre-flight planning, in-flight mission monitoring and decision support, and post-mission analyses. The progress of the NAMMA flights can be tracked through the Real-Time Mission Monitor at <http://namma.nsstc.nasa.gov/flighttracks.html>.

The writers, ASRI employees, support the Office of Strategic Analysis and Communications.

"It's critical that we learn how these storms form and strengthen, so we can build better forecasting models to help protect lives and property," Hood said.

The series of experiments will use advanced NASA technology in space, on the ground and in the air to study tropical storm systems as they originate and evolve. NASA's DC-8 medium-altitude research aircraft will serve as the primary research tool for the

investigations.

Outfitted with in situ and remote-sensing instruments, the aircraft will fly some 40 crew members and scientists over the eastern Atlantic Ocean. They will conduct eight-hour missions every two to three days.

The DC-8 will be flown in coordination with NASA weather radars, balloon-borne instruments and mobile research ground

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NASA recognizes Marshall personnel who help determine the 'bottom line'

By Bill Hubscher

The Cost Analysis Division of the Office of Program Analysis and Evaluation at NASA Headquarters in Washington recently recognized six Marshall employees for their work as cost estimators, also naming one as the agency's Cost Estimator of the Year.



Barbara Stone-Towns

The employees were honored at the annual NASA Cost Estimating Symposium held in Cleveland, Ohio. Barbara Stone-Towns, senior cost analyst for Marshall's Engineering Cost Office in the Office of Strategic Analysis and Communications was named NASA's Cost Estimator of the Year. The award recognizes an individual who excels in the technical merits of cost estimating.

Stone-Towns has served as the leading cost analyst for more than 80 launch vehicle estimates in the last year, and was instrumental in jump-starting the cost analysis data requirements, or CADRe, for the Ares I crew launch vehicle. Cost estimators ensure the CADRe, a project's specific technical and engineering description, is as complete as possible to build accurate cost estimates.

Stone-Towns also participated in community outreach activities by teaching a training session on statistics and economics through the Society of Cost Estimating and Analysis, a non-profit organization dedicated to improving cost estimating and analysis in government and industry, and to enhancing the competence and

achievements of its members.

Also honored at the symposium was NASA's Exploration System Architecture Study cost team, composed of members from across the agency, including the Marshall Center. The study team received the Cost Estimator Team Award, which recognizes outstanding team performance in the NASA cost community through specific accomplishments during the past year.

Marshall employees honored as members of the study team were Stone-Towns; Steve Creech, manager of the Engineering Cost Office; cost analysts Charles Hunt and Tracey Reed from the Engineering Cost Office; Melek Ferrara, a support contractor to the Engineering Cost Office from Science Applications International Corp.; and Dr. Michael Nix, formerly a senior cost analyst with the Engineering Cost Office and now the operability design and analysis manager for crew launch vehicle integration.

The Exploration System Architecture Study cost team was asked to provide cost estimates and analysis of possible architectures for supporting the International Space Station and for returning humans to the moon. The scope of the project included estimating the development, production and operations cost of numerous configurations for the Ares launch vehicles, Crew Exploration Vehicle, Lunar Surface Access Module, ground system and lunar surface systems.

Cost estimators at Marshall nominated the team and Stone-Towns for their respective awards.

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

Hurricane

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stations. Together, these instruments will measure chemical, optical, microphysical and radiative properties of the atmosphere.

This mission builds on the African Monsoon Multidisciplinary Analyses, or AMMA, an international project aimed at improving the knowledge and understanding of the West African Monsoon.

The NASA-led study pools the resources and expertise of the National Oceanic and Atmospheric Administration, along with those of an array of research institutions and universities.

More information about NASA's hurricane field mission is available on the Web at <http://namma.msfc.nasa.gov>.

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The NAMMA study will monitor hurricanes from land, air and space. A satellite image, taken Aug. 28, 2005, shows Hurricane Katrina approaching the Louisiana coast.

Marshall Center and Boeing testing of space station component proves it's ready for assembly

The Marshall Center and the Boeing Company in Huntsville will see the culmination of many years of hard work when the Port 3/Port 4 truss segment is attached to the International Space Station.

The Marshall Center and Boeing conducted some of the advanced structural testing to ensure the 45-foot-long truss segment would perform as expected once a part of the station.

The truss segment is scheduled to launch with the Shuttle Atlantis, which will resume major orbital construction of the station. During its mission, designated STS-115, Atlantis will be delivering and installing the 17.5-ton, bus-sized P3/P4 segment of the station's girder-like truss that includes another set of solar arrays, batteries and associated electronics.

From July 1999 to October 2000, Boeing and Marshall conducted structural testing on a P3/P4 test article. The testing verified P3/P4 would perform well with launch and on-orbit structural loads during its 15-year lifespan.

There were two major structural tests performed. One of the tests, called the modal survey test, induced vibrations into the structure with mechanical shakers and by striking the element with a large hammer-like device while various accelerometers measured the results.

The more complex and lengthier testing, called the static structural test, simulated space shuttle docking loads as well as other launch and on-orbit events.

This test required a number of hydraulic actuators to be attached to various locations on the element as they input actual structural loads, by either pulling or pushing on the aluminum structure to measure how the element responded. Measurements were taken

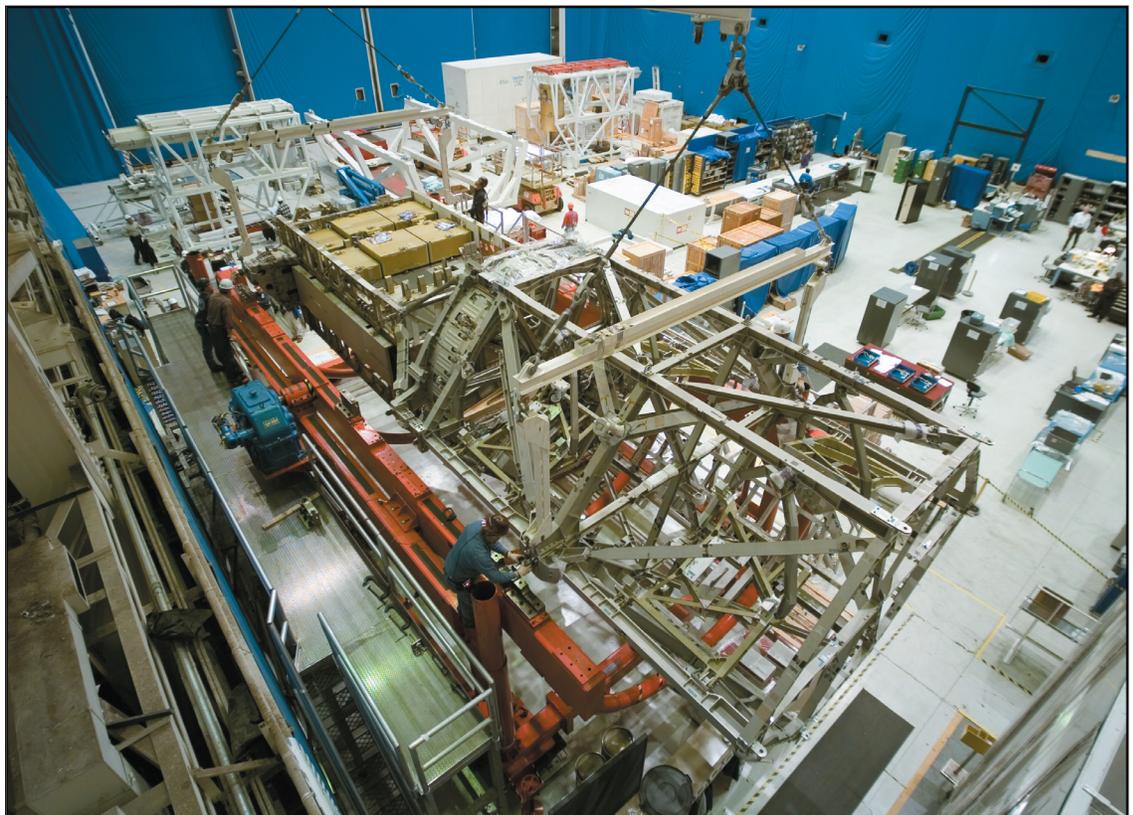
using hundreds of strain gauges, deflection and load-measuring devices attached to P3/P4.

"We were trying to validate whether the analytical models correctly predicted the vibration and structural responses throughout the structure to specific inputs," said Steve Ernst, the Boeing element manager for the P3/P4 test article and currently manager of the Boeing Huntsville International Space Station Projects Office. The testing, he added, was to validate the models kept by NASA and Boeing so they would better understand the kinds of stress placed on the structure when dynamic events such as shuttle dockings occur. "We put the equipment through a qualification level, which was above the expected flight loads."

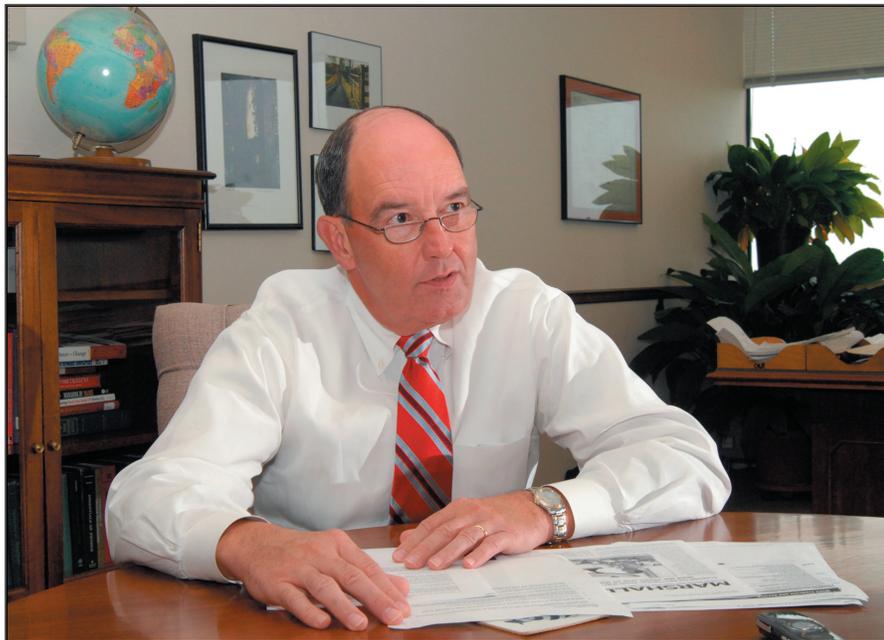
Marshall Center engineers and technicians, using the Building 4619 test facility, performed this testing because of their long history and expertise with testing of major station elements. P3/P4 was the last major station element tested at Marshall and was one of the largest.

"As a test engineer, there is nothing as rewarding as seeing hardware you were responsible for go fly," said Ward Overton, a Marshall engineer who tested P3/P4 and currently works on the External Tank Project. "The former Static Structural Test Branch in the Engineering Directorate exceeded expectations in completing this testing. Not a lot of folks can say they worked with hardware that's on the station. I'm proud our team can say we did."

The Boeing Company in Huntsville contributed to this article. Lori Meggs, an ASRI employee who supports the Office of Strategic Analysis and Communications, also contributed.



P3-P4 truss during testing at Marshall.



Doug Stoffler/MSC

Carter believes the people of the Office of Center Operations are dedicated and, just like all of NASA, they work long hours and take pride in creating new efficiencies for what they do.

transportation function. That's the moves, which can include anywhere from 1,800 to 2,000 people in a year. Logistics also moves flight hardware. We move nodes and things that are flight-ready for the programs and projects, on and off site.

The last area is Protective Services, and Mike Wilson is the manager. A lot of people refer to them as security. They perform the function that is required for identification of individuals. They make sure you are who you say you are. They check clearances and where you can go on center. They manage export control and International Traffic in Arms Regulations and other types of program security — those kinds of operations that functionally fall under security.

You've detailed how the Office of Center Operations is organized. Could you tell us how it operates at the Marshall Center?

Center Operations is very much tied to the programs and has major relationships with the programs and projects here at Marshall.

The Environmental Engineering office is helping with the foam on the external tank. Potentially, the product may be modified because of an ozone-depleting substance requirement of the Environmental Protection Agency. Our folks are working diligently with the Exploration Launch Projects Office team as that process takes place.

In the facilities area, we are continuing to build and modify buildings as needed to provide services and support required for the programs. The second of the three large technical buildings that are to be built at Martin and Rideout roads, hopefully, will be awarded by the end of September or early October. The new building will house offices for over 400 personnel. It's an exciting time as we begin to see what

the new mission requirements are. Then, with the programs' needs in mind, we will help supply their requirements.

Logistics Services continues to support flight hardware. We move many things on barges. We also make sure that all the flight hardware developed and designed by the engineers and scientists here at Marshall gets to the right place. We also handle the standard things you think of — moving boxes and furniture, providing furniture for offices, transportation requirements and those kinds of things.

Also in Logistics, and with ties to Environmental, is the Environmental Management System which has to do with the management of the chemicals on the center. We have undertaken a big campaign, thanks to Mike Rudolphi (director) in the Engineering Directorate, to make sure we are ready for the ISO 14001 certification in November.

It's a requirement under the law to have the workplace environmentally safe. A presidential directive about 18 months ago mandated all

federal agencies to have an Environmental Management System in place with policies and procedures. We have taken this on and primarily have implemented a system across the center with the help of the Engineering Directorate, Center Operations and the Science and Mission Systems Office. It's an exciting time at Marshall and we continue to make it safe for people to work in all locations of the center.

In the physical security area, we do a lot with program security folks. We make sure requirements such as those in export control and International Traffic in Arms Regulations are met. As we develop new technologies, such as engineering designs, physical security is really critical so that our assets are protected and not available where others could profit from them. We have security individuals on the different program teams who help ensure consistency across the board for the protection of assets and property.

What are the greatest strengths of the Office of Center Operations?

I read the interview with Robert Lightfoot, manager of the Space Shuttle Propulsion Office, in the Star and I would have to answer the same way — our people. We really count on the quality and experience of our folks. They want to provide the absolute best customer service and products they can. They're dedicated and, just like all of NASA, they work long hours and take pride in creating new efficiencies for what they do.

Our folks have an enthusiasm in meeting the mission to get NASA to the place where it needs to be in respect to the Vision for Space Exploration. We also are focused on customer service in a big way. We found a creed that we borrowed and adopted. We are only here

See Carter on page 9

The cold equations

Marshall's X-ray Calibration Facility testing James Webb Space Telescope element

By Rick Smith

Engineers at the Marshall Center this month began simulated space environment testing on a key element of the James Webb Space Telescope. NASA's next Great Observatory, the telescope is scheduled to launch in 2013.

The Backplane Structural Test Article is a section of the telescope's frame that will anchor the 18-segment mirror, which will unfold in orbit to deploy its powerful infrared optics. The element was loaded Aug. 8 into the massive vacuum chamber inside Marshall's X-ray Calibration Facility. For the next four weeks, it will be subjected to temperatures as low as minus 420 degrees Fahrenheit, as scientists and technicians study its flexibility and tolerance margins.

Just how cold is that? According to Kevin Russell, element lead for the James Webb project at Marshall, it's about as cold as a machine can get and continue to function. At minus 459 degrees, or "absolute zero," the kinetic motion of subatomic particles simply ceases. That's nearly the chill factor the James Webb will experience at its orbital destination — some 932,000 miles from Earth.

There, the deep cold of space can deform structural materials and warp ultra-sensitive optics. That's why cryogenic testing on the ground is vital to the telescope's optics and support structure. To prevent that loss of visual clarity, developers factor in deformation margins during construction, delivering hardware corrected to account for the effects of zero gravity and subfreezing space temperatures. These inverse-deformities are apparent at normal, sea-level temperatures. In the icy reaches of space, however, the planned cryogenic deformation shifts the elements back into perfect alignment.

Such meticulous analysis and precision fabrication is essential to mission success. When the James Webb reaches its planned orbit, it will be four times the distance from Earth to the moon, Russell points out — there will be no chance for a do-over later.

Enter the engineers at the X-ray Calibration Facility, part of the Optics Office within Marshall's Science and Mission Systems Office. Originally built in 1975 to support development of X-ray optics technologies and rebuilt in 1989 to calibrate NASA's Chandra X-ray Observatory, the site was dramatically upgraded in 1999 and again in 2003 to expand its optics calibration and cryogenic testing capabilities. Today, the facility is the largest X-ray optical test site in the world, and NASA's primary resource for horizontal vacuum



David Higginbotham/MSFC

Marshall engineers at the X-ray Calibration Facility maneuver the Backplane Structural Test Article into the facility's massive vacuum chamber. The backplane is a section of framework for the James Webb Space Telescope, NASA's next Great Observatory, scheduled for launch to orbit in 2013.

testing of large-scale optics systems. A 6,000-square-foot clean room permits controlled access to the 24-foot-diameter, 75-foot-long stainless steel chamber, which can accommodate in-flight configurations of any payload to be launched from the space shuttle.

The backplane test article, built by project subcontractor ATK Thiokol Propulsion of Magna, Utah, is formed from a lightweight composite material. Once thermal testing is completed, the test article will be stored in the facility's clean room for further testing later in the development cycle. Marshall optics engineers will stay busy, however. The X-ray Calibration Facility will begin receiving some of the 18 primary mirror segments for testing in 2007.

According to Jeff Kegley, team lead for the X-ray Calibration Facility, each primary mirror segment will be tested twice over the next four years — once to determine how much the mirror deforms

See X-ray on page 7

Marshall to kick off 'Compassion In Action' Combined Federal Campaign on Sept. 19

By Rita Roberts

Kickoff festivities for the annual Tennessee Valley Combined Federal Campaign, an effort by federal employees and military personnel to raise money for charities, will be Tuesday, Sept. 19, at 10 a.m. at the NASA Picnic Area.

Team Redstone, which includes the Marshall Center and Army organizations on Redstone Arsenal, will participate in the event with more than 30 federal agencies in the area.

"I am excited to be helping organize this year's Combined Federal Campaign for Marshall and am looking forward to the kickoff event," said George Myers, Marshall's 2006 CFC executive chairperson. "Marshall employees have always given freely of their time and money in the past. I am sure they will do the same this year to provide help to the charities of their choice."

X-ray

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at extremely cold temperatures and again to ensure improper deformations are corrected.

NASA's Goddard Space Flight Center in Greenbelt, Md., manages the James Webb Space Telescope program. Northrop Grumman Corporation of Redondo Beach, Calif., is the prime contractor. The Marshall Center provides technical oversight and testing of optics and flight hardware.

The telescope is intended to provide new insight into the origins of the universe and its large celestial systems. The observatory's powerful infrared optics will peer into the depths of the cosmos, looking back more than 10 billion years at the so-called "cosmic dark zone," the period when the very first matter likely converged to form stars and galaxies.

For more information about the James Webb Space Telescope and its mission, visit <http://www.jwst.nasa.gov>.

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

NASA Health and Fitness Expo to be held Sept. 6

The NASA Health and Fitness Expo will be held on Wednesday, Sept. 6, at the Marshall Activities Building 4316, from 10 a.m. to 2 p.m.

The expo will start with a Run for Fun 5K event at 9 a.m., sponsored by the MARS Running Club. The annual employee one-mile "Walk for the Health of It" will be held at 11 a.m. Vendor exhibits will be open from 10 a.m. to 2 p.m. and will offer a wealth

of medical and health fitness information as more than 50 vendors from the area's traditional and nontraditional health community display their programs and services. Rain date for the walk and run is Thursday, Sept. 7, at the same times.

The 2006 CFC theme is "Compassion In Action." Marshall has set this year's campaign goal at \$575,000. The overall goal for the area's Tennessee Valley CFC is \$1.8 million.

The Tennessee Valley CFC kickoff event will showcase more than 50 local charitable organizations at a fair on the picnic grounds from 11 a.m. to 2 p.m. The fair will provide Team Redstone members an opportunity to learn about the charities that will benefit from the Tennessee Valley CFC drive. Also featured will be a display of classic cars; a motorcycle display by the Buffalo Soldiers Motorcycle Club of Alabama; door prizes; and entertainment by the Blue Notes, a local a cappella singing group of Huntsville police officers.

A complimentary Outback Steakhouse grilled lunch will be served to participants attending the event. Tickets will be distributed on a first-come, first-served basis at the 10 a.m. kickoff presentation. Costco will donate desserts and Buffalo Rock Company will provide Pepsi products to accompany lunch.

Marshall employees are encouraged to wear their Combined Federal Campaign T-shirts from past years.

In case of inclement weather, the kickoff will be held Sept. 21 at the same time and place.

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

Why so far away?

The James Webb Space Telescope will be launched to space on board an Ariane V rocket, which will deliver it to orbit at the second Lagrange point, or "L2" — more than 932,000 miles from Earth.

The L2 site is one of five points identified by and named for 18th-century mathematician Joseph-Louis Lagrange. At these points, the gravitational pull of Earth and the sun balance one another. Lagrange sites naturally deliver the centripetal force necessary to keep a satellite rotating in sync with Earth without excessive on board power requirements.

Why so far from home? To keep the sightlines clear. The James Webb's position enables its sun shield — the size of a tennis court — to block out the sun's heat along with reflected light from Earth and the moon. This shielding permits the telescope to focus accurately on faint astronomical signals from the depths of space, and ultimately deliver far more penetrating infrared studies of the ancient cosmos than ever before possible.

Thirty selected for Space Flight Awareness honors

Thirty Marshall Center employees and contractors have been honored for their significant contributions to the space program. The honorees attended a special recognition event in Orlando

Aug. 24-28.

They attended an awards ceremony in their honor and toured the Kennedy Space Center.



Linda K. Boczek
EG&G



Terrell R. Boyd
EG&G Logistics Services



Kathy H. Brown
Teledyne Brown
Engineering



John A. Busbey
Office of Procurement



Nancy D. Corbeille
Jacobs Sverdrup



John C. Davis
Engineering Directorate



Lynn G. Doughty
Engineering Directorate



Jeffrey Draper
Engineering Directorate



Jason L. Elmore
Engineering Directorate



Gene E. Fundum
Office of Center
Operations



Chrissa K. Hall
Office of Human Capital



Timothy A. Hemken
Safety & Mission
Assurance Directorate



Sharal B. Huegele
Office of the Chief
Financial Officer



William A. Jacobs
Exploration Launch
Projects Office



Clifton A. Jones
Teledyne Brown
Engineering



Maureen C. Lacombe
Office of Strategic
Analysis and
Communications



Jon C. McAfee
SAIC



Thomas O. Milner
Shuttle Propulsion
Office



Ward W. Overton
Shuttle Propulsion
Office



Joseph J. Pelfrey
Shuttle Propulsion
Office



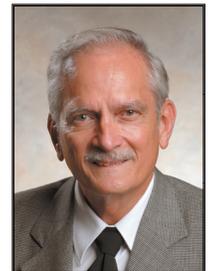
Judy Roberts
Hernandez Engineering



John R. Sharp
Engineering Directorate



Dana S. Solomon
Science & Mission
Systems Office



Ray N. Sparks
Computer Sciences
Corporation

See Space Flight Awareness on page 9

Space Flight Awareness honors continued



D. Scott Stevens
Morgan A. Stanley
Company



George T. Story
Engineering Directorate



Baraka J. Truss
Engineering Directorate



Ronald J. Unger
Science & Mission
Systems Office



Michael T. Vanhooser
Office of the Director



Kimberly A. Wright
Office of the Chief
Information Officer

Carter

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because of the customer, and as you read the creed you will see that it is true. (See article "Because of the customer, we exist!" on page 10.)

We have a wealth of experience in Center Operations, including personnel that have been out here for many years and they know what needs to be done. Because of our years of experience, we have great contacts. We can pick up the phone or send e-mail and have good, quick answers.

We also have a high level of technical competence. We have folks that are outstanding in what they do and they do it in a very quiet way. Our folks get the job done behind the scenes. For example, we have a man, Jerry 'Bear' Hicks, in Facilities who has been here for 41 years. He was recently awarded a NASA Silver Snoopy Award for his work. We have consistently given him some of the toughest assignments on how to make things work. He keeps coming up with creative ideas and ways to make things better — you can't buy that. He is a great example of some of the people we have here at Marshall.

Making sure the center infrastructure runs smoothly and guarding the health of the center and its employees are key functions of the Office of Center Operations. What are the major challenges in managing such broad and diverse customer requirements?

I think our challenges are to make absolutely certain we understand the customer. We must know what they are thinking and read their minds. We need to know how they want to go about their jobs to be able to get results. This is a challenge because everyone at Marshall is busy. You have to build those healthy relationships through the days and months — so they will just pick up the phone and call us. We want them to ask — would you do this or can you do this better?

One challenge we have faced is our budget situation. We have used Lean Six Sigma processes, a leading technique to maximize

production efficiency and maintain control over each step in the process. We have had good success from an efficiency and continuous improvement standpoint. The center has benefited so much that we have been asked to move our Lean Six Sigma function that we started to the Engineering Directorate. I also think it will benefit the new Exploration Program and other programs as they get cranked up.

Another challenge is the transition from shuttle to the new vehicles. This will be a major challenge as an agency, not just at Marshall. A lot of shuttle elements are here and we will have a major role in helping the agency decide what direction we go. Center Operations has been working very closely with Robert Lightfoot and his team to ensure that no balls are dropped in the transition.

The transition means we will have several different roles. In facilities and in logistics — we have a lot of facilities and property at the Michoud Assembly Facility. Do the facilities become part of Marshall after the transition? What will be done relative to the Constellation Program during the transition? What happens to the shuttle property when shuttle retires and the transition is complete? There are a lot of pieces that need decisions.

The environmental engineering piece is going to be very critical. Our environmental engineers, along with personnel from engineering and the Exploration Launch Projects Office are specifically looking at the tank foam challenge.

As we move forward, we are getting more work, and it will be a challenge not to let folks get burned out. This is a real concern across the agency as this major exploration program is rolled out. We want them to be able to go home and enjoy their family, neighbors and community activities.

Balanced living needs to be encouraged from a management level. Sometimes you have to work weekends and late at night, but overall you need to stay tuned in and listen to your folks. You have to make sure they are not being drained mentally, physically or otherwise.

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Carter

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What role does the Office of Center Operations have in supporting the Vision for Space Exploration?

It's really the functions I described earlier. In Environmental, it's being engaged in the external tank foam challenges and how that will transition to the new vehicles. For Facilities, it's making sure the buildings we have are the ones we need. We will need a cadre of facilities to meet the mission that we have today. We are changing the culture of Marshall and trying to accommodate the needs of the customer.

In Logistics, flight hardware continues to be a big issue — how we are going to move things, are the barges long and wide enough for the new vehicles, and are the cranes and equipment capable of handling what we need. All of the things the programs need to accomplish in support of the Vision.

For program security, ITAR and export control issues are a large part of what we do in support of the Vision. We are doing a great job in export control to help the programs understand exactly what they can and can't do. Education plays a big part.

What is the goal of the Office of Center Operations and how can each employee help to make that goal successful?

We believe that we are customer driven — we want the customer to have all the tools and capabilities that they need to do their job.

Another goal is continuous improvement. We want to continuously improve so we are better than we were yesterday. You do that by putting in processes like Lean Six Sigma that provide results-driven products.

We also are looking for innovators. We will use Marshall's Integrated Asset Management module to help us with property management and the Environmental Management System to help us with our environmental hazardous chemical control. We are looking at the process for background checks, for badging people and making sure the right people are here with the correct credentials. We are using geographical information systems so it's easier for people to understand where things are from a graphics representation. Facilities, Logistics, Environmental and Protective Services are all doing good things in these areas. It's exciting stuff and we've gotten high marks from Headquarters.

One goal is for employees to continue doing the great job they are doing. We have folks who are equipped with experience, education and the right attitude to make it fun to be at work. As a team, you make sure you do your share and convey to each other that you appreciate what they do.

Wayne Hale, the shuttle program manager, is one of my heroes. He continues to have great messages. I sometimes use those messages in my motivational speeches to the team. It helps them understand that this is hard stuff that NASA is doing. The challenges are hard.

As a support organization, we want center employees not to have to worry about their office — not worry about how hot or cold their

Because of the customer, we exist!

By Rita Roberts

Jim Carter, director of the Office of Center Operations, believes in customer service and making sure customer needs are met. His office has adopted an employee creed to help motivate and focus its team members.

The Creed

*Because the customer has a need, we have a job,
Because the customer has a choice, we must be the better choice,
Because the customer has sensibilities, we must be considerate,
Because the customer has an urgency, we must be quick,
Because the customer is unique, we must be flexible,
Because the customer has high expectations, we must excel,
Because the customer has influence, we have the hope of more customers,
Because of the customer, we exist!*

According to Carter, this creed is the embodiment of Center Operations' enthusiasm to enable the Vision for Space Exploration. All of Center Operations believe that striving for efficiency and continual improvement will help meet the customers' needs.

"We listen intently to what our customers are saying about what they need," said Carter. "It counts, even if it's just cooling down your office."

Carter depends on the technical experience of the people in Center Operations. "This office is very relevant to the success of NASA's mission," said Carter. "We have shown our excellence in many ways. Our new badging concept and our Emergency Management System have received kudos from Headquarters.

"Those are the things that help us meet high customer expectations. We don't exist for any other reason or purpose except the customer."

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

- Credit: The Creed was adopted from Lori's Diner, San Francisco, Calif.

office is, what kind of furniture they might have, what badge they might need or what parking space they have. We want that to be so invisible to them that they don't have to worry about any kind of support tasks. We want to provide that for them.

We understand you are about to retire. How would you describe your time at Marshall, and what are your future plans?

I think everybody who comes to work here goes, "Wow, I get to work for NASA." I came from the Department of Defense. I never

See Carter on page 11

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

Brunswick full-size slate pool table, burgundy felt, \$400. 714-3742

Golf clubs, men's left-handed, woods 1/3/5, irons 3-9, PW, SW, putter, no bag, \$150. 882-3983

Hi-performance Streaker Go-Cart, 7HP, seatbelt, roll-cage, off-road, \$700. 461-0096

Antique drop-leaf table, gate-leg, extends 72", \$325; Pine hutch buffet, \$200. 772-1989

Patio table, hexagon shape, glass top, 5 chairs, \$100. 881-2272

Two concrete planter pots w/leaf on base, \$35 each. 851-0008

Bushmaster Carbon 15 Type 21 pistol and rifle, banana clips, 800 rounds of ammo. 931-632-1959

Wood dining table w/leaf, 5 side chairs & arm chair w/upholstered seats, \$195. 256-881-0841

Pottery Barn changing table, white, \$325. 961-9716

Valhalla Masonic Garden, 4 side-by-side plots, \$6,000. 881-9421

Stearns and Foster queen sleeper sofa, \$250. 519-9326

Intel 875PBZ P4 motherboard, in original box, \$50. 850-4185

Seeburg juke box, 80 45RPM records, \$1,150. 837-6916

Round glass tabletop, 48", tempered w/beveled edge, \$85. 256-232-7676

Assorted boys winter clothing, size 18 months; used Normandy wood clarinet w/case & music stand, \$600. 837-5380

Wood bunk beds by Vaughn Furniture, 4 yrs. old, \$100. 256-797-8657

Computer desk w/monitor shelf, 36x24, glass top, \$40. 355-6648

Large trampoline, \$50; MTD, Snapper and Wheel Horse riding mower, bagging attachments; canning jars. 881-6040

Wallace Baroque silver-plate tea service, 7-piece, other pieces available, \$750. 881-5378

Oval dining room table w/leaf, 57-1/2x 41, 6 chairs, \$250. 858-0850

Ceramic molds, \$100 for group. 256-505-3363 (Guntersville)

Tricot lingerie fabric, many colors & lengths, \$50 all; Singer Touch & Sew machine w/accessories, \$75. 256-505-3363

Diamond solitaire ring, .51 carat, have papers, appraised \$2,700, sell for \$1,500. 256-468-4107

NordicTrack ski exercise machine, \$100. 881-3527

Queen bedroom suite: waterbed w/6 drawers, chest-of-drawers, nightstand, \$250. 256-565-9918

Two antique chairs, ladies and gents, upholstered in white, \$900 for pair. 256-828-0554

Swivel rocker, \$20; magazine tables, \$20; artist's books, \$10-\$25; twin bedding, \$20; lamp, \$15. 256-534-0939

Heritage white crib w/mattress, pink bedding, play yard, walker, bouncer, front carrier. 539-4449

Canon A80 digital camera w/swivel LCD screen, \$190; Nvidia 6800 vid-card, 256Mb PCI-E, \$140. 655-1986

Oak bedroom suite: chest, dresser w/mirror, headboard, 2 nightstands, \$250; Navy queen sleeper sofa, \$150. 882-3326

Six Flags tickets, 2 adults, \$45. 694-9349

iPod remote Interactive Dock DS-A1 for Onkyo stereo/home theater systems, never used, \$65. 256-828-1234

Oak entertainment center w/pier, holds up to 36" TV, \$600. 829-0285

Vehicles

2001 Dodge van, Star Craft conversion, 74K miles, \$11,500. 256-772-9768

2003 Jeep Wrangler SE, white, 4 cyl, 38.5K miles, MX6, adjustable shocks, \$13,900. 883-1874

2002 Prowler camper w/slide-out, sleeps 8, full kitchen and bath. 721-1260

1997 Chrysler LHS, \$2,500. 379-2179

2001 Harley Davidson Ultra Classic, less than 24K miles, \$16,500. 434-0499

1981 Chevy pick-up, SWB, a/c, 3-5/V8, no rust, 2nd owner, \$3,300. 783-2637

Travel trailer, 26', a/c, heater, needs some work. 426-4149

1998 GMC Yukon SLT, maroon w/tan leather, heated seats, auto, 4WD, \$9,400. 682-6326

1995 Dodge Caravan, 147K miles, runs well, new brake system, struts, a/c, well maintained, \$1,900. 772-1870

1965 GT0 convertible restored, fontaine blue, original drive train, 35K miles. 651-9858

2006 Honda Civic EX, 5-speed, 27K miles, gray, \$13,800. 256-864-2616

1971 Ebbtide fishing boat, 13', 40HP outboard, two chairs, \$1,100. 885-2293

2005 Honda 350 Rancher ATV, electronic shift, 4x4, red, never ridden in mud, \$3,900. 656-0043

2004 Honda Civic EX, 4 door, gray, 36mpg average, \$14,500. 233-6197

2003 Honda Civic LX, 4 door, auto, bronze/tan, 7.6K miles, \$13,000. 655-1552

2003 Toyota Matrix, white, all options, 73K miles, \$10,200. 527-8116

1998 Nissan Maxima, V6, sunroof, all options, keyless entry, one owner, 148K miles, \$5,500. 527-8116

1998 XR400 Honda motorcycle, never raced, \$1,950. 461-9404

Wanted

Compost bin. 828-5591

Water well drilling rig, to buy or rent. 509-7907

Used Verizon flip-phone in working condition. 656-9087

Coffee table suitable for den or recreation room. 726-1381

Free

Ham radio antenna towering over house, on concrete pad w/3 guy wires, you remove. 256-498-0506

Black, golden retriever mix, 9 months, all shots, neutered, good natured. 961-7894

Found

Bracelet, Bldg 4200 area. Call 544-3623 to claim/identify

Two pairs sunglasses; one pair glasses; saw; USB flash drive; ladies sweater. Call 544-3623 to claim/identify

Carter

Continued from page 10

knew how good NASA was until I came here. While I still love the Department of Defense and have close ties and contacts there, what we do here is unbelievably exciting.

It makes a powerful impact when you say you work for NASA. When I go back home to Louisiana, or visit friends in other places and say I work for NASA, they want to know everything. They want to know what you do and have you met any astronauts?

When I came to Marshall seven years ago, Jan Davis came on board the same day. I couldn't believe that not only was I talking with an astronaut, but that I would be working with an astronaut. It is one of those things that we sometimes take for granted. I encourage folks to support the astronauts and encourage the school kids and educators to come out to Marshall when the astronauts speak. You can learn so many things from them.

We need to do a better job of communicating what NASA does. There are tremendous byproducts as a result of the great technology

that our engineers and scientists develop. When I first joined NASA, my father-in-law asked me what NASA does. I told him that the TV remote he was using to flip channels, as I understand it, is a byproduct of NASA technology. Oh, and that pacemaker you have inside that is helping you live, that also is a byproduct of NASA technology. I won him over just by saying those two things.

My time at NASA has been really good. I have sensed a real enthusiasm for what we do, especially now that we have the Vision. I also sense a great cooperation with people. It's amazing to see how all the centers are trying hard to work with each other. That is a very good thing. We have to build healthy relationships all together as team members for NASA. It's been exciting.

While I am grateful for almost 35 years of federal service, I think it is time for me to make a life change. There are a lot of things that I am passionate about, and I am excited that I will get a chance to do some of them.

Rita Roberts and Shelley Miller, ASRI employees who support the Office of Strategic Analysis and Communications, contributed to this article.

Focus on Marshall goes 'tech shopping'



At the Aerocapture Technology booth at Marshall's Research and Technology Expo Aug. 24, engineers explain the process of creating a new heat shield using the latest technology. Hundreds of Marshall employees attended the event in the Activities Building 4316. More than 70 booths displayed a broad range of the newest technologies and advances in Marshall capabilities – from friction stir welding to valve flow analysis. See more technologies from the expo on next month's Focus on Marshall, beginning Tuesday, Sept. 5. Focus on Marshall airs on Marshall TV and 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.

Atlantis

Continued from page 1

Johnson Space Center Tuesday morning. Crew members will return to Kennedy after a new launch date is scheduled.

During STS-115, Atlantis' astronauts will deliver and install the 17.5-ton, bus-sized P3/P4 integrated truss segment on the station.

The girder-like truss includes a set of giant solar arrays, batteries and associated electronics. The P3/P4 truss segment will provide one-fourth of the total power-generation capability for the completed station.

Space Shuttle Atlantis was first scheduled to lift off on Sunday, Aug. 27, but the launch was postponed Aug. 26 for at least 24 hours, following a lightning strike at the launch pad on Aug. 25. After reviewing the engineering data, managers determined on

Sunday the shuttle was safe to fly and eyed an Aug. 29 launch.

On Monday, Aug. 28, managers decided on a second postponement and began preparations for roll back to the safety of the Vehicle Assembly Building as the tropical storm approached, but leaving open the option of launching later in the week if Ernesto's path changed.

On Tuesday morning, NASA decided to return Atlantis to the safety of the Vehicle Assembly Building for safety, even though there was some variability in the forecast for the storm. The decision to roll back to the pad came about six hours later.

For information about the STS-115 crew and mission, visit <http://www.nasa.gov/shuttle> .

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

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