



MARSHALL STAR

Serving the Marshall Space Flight Center Community

Nov. 6, 2008

Marshall Center successful in October ISO audit

By Rita Roberts

The Marshall Space Flight Center has been recommended for continued ISO certification after its successful completion of the October ISO surveillance audit.

The audit was conducted by National Quality Assurance USA of Acton, Mass., an industry-recognized registrar for quality management system standards and environmental system standards.

The center has successfully maintained ISO 9001:2000 certification for the center's Quality Management System, AS 9100 certification for its Aerospace Quality Management System and ISO 14001 certification for its Environmental Management System. The center received no major nonconformances during the audit and only a few minor nonconformances.

Marshall Associate Director Robin

Henderson praised the center and its team for this successful effort. "Everyone can be proud of the efforts that contributed to the center maintaining its certifications," said Henderson, who serves as Marshall's ISO 9000 management representative. "The final report commended the thorough internal audit approach and the professional and cooperative attitudes of all personnel.

"This certification underpins the dedication of Marshall's work force to the highest quality performance standards," she added. "I want to thank everyone who supported the audit for their outstanding efforts."

Adopted by the International Organization for Standardization, ISO publishes a set of international standards and guidelines for an effective quality management system. The organization is a network of

the national standards institutes of 157 countries — one member per country — with a central secretariat in Geneva that coordinates the system. The Marshall Center received its first ISO registration in 1998. Attaining these standards supports Marshall's policy to provide quality products and services to customers and partners that adhere to the NASA values: safety, teamwork, integrity and mission success.

The next surveillance audit is scheduled for spring 2009.

For more information on Marshall's ISO 9000 policy, visit "Inside Marshall" at <http://inside.msfc.nasa.gov> and click on the "ISO 9000" link.

Roberts, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

NASA gives 'go' for space shuttle launch

Mission includes delivery of Marshall-managed Water Recovery System

By Sanda Martel

NASA managers have set Nov. 14 as the official launch date for space shuttle Endeavour's STS-126 mission to the International Space Station. Commander Chris Ferguson and his six crewmates are scheduled to lift off from NASA's Kennedy Space Center, Fla., at 6:55 p.m. CST.

The launch date announcement followed a review of the shuttle, its payload and the space station at the Kennedy Center on Oct. 30. The Flight Readiness Review is a standard session that clears the way for the launch of each shuttle mission.

NASA managers also announced Oct. 30 that the launch date for the fifth and final shuttle mission to the Hubble Space Telescope will not meet a February 2009 launch window. The decision came after

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The STS-126 crew on the 225-foot level of Launch Pad 39A at the Kennedy Center, Fla., are, from left, mission specialists Heidemarie Stefanyshyn-Piper and Steve Bowen; Pilot Eric Boe; Commander Chris Ferguson; and mission specialists Sandra Magnus, Donald Pettit and Shane Kimbrough. The upper portion of the space shuttle external tank and a solid rocket booster are in the background.

'I am still awe-struck by the amazing technologies developed for the Space Shuttle Program'

Joe Gentry leads a team in the Reusable Solid Rocket Booster Project Office at the Marshall Space Flight Center, responsible for all pyrotechnic devices on the space shuttle's reusable solid rocket booster — including a redesign that will fly the first time on the next shuttle mission, STS-126, targeted to launch Nov. 14.

What are pyrotechnics? Describe your area of responsibility.

A pyrotechnic system is nothing more than a series of high-reliability devices with a very efficient energy source to do work by either expanding hot gases or a detonation shock wave. The energy source is typically either an explosive material or a propellant. Explosive materials are typically harder to initiate than propellants and have burn, or detonation rates, in the thousands of meters per second, compared to inches per second of some propellants. My team is responsible for 15 different reusable solid rocket booster component designs. These components are used in systems that must fracture large nuts or bolts, cut metal plates and composite materials, thrust heavy structures to specific velocities and initiate solid rocket motors.

Along with pyrotechnic engineers in the Marshall Center's Engineering and Safety and Mission Assurance directorates, my team is responsible for the design, procurement, testing and performance assessment of all the pyrotechnic devices on the space shuttle reusable solid rocket booster. We work very closely with our support contractors and all vendors — in essence as one team — with a common goal of building reliable hardware. Since there is no way to check out a pyrotechnic device to know if it will work, we control all manufacturing steps and do a lot of in-process inspection and testing to ensure we have good hardware. As part of developing the design, we perform pyrotechnic margin testing to ensure adequate performance under worst case conditions, which is similar in philosophy to what is done with a structural test article to demonstrate a factor of safety.

What is your background and what generally is your area of research?

My background is in structural design and pyrotechnics, two areas that may seem radically different but in reality are very similar. A pyrotechnic device is nothing more than a specialized structure with a highly efficient energy source that's initiated to generate a mechanical action.

I graduated in 1986 from the Georgia Institute of Technology in Atlanta with a bachelor's degree in mechanical engineering. I also was enrolled in the cooperative education program, alternating my studies with work at United Technology's USBI Company in Huntsville. From 1982 to 1985, I worked on space shuttle solid rocket boosters in the Structural Design and Stress Analysis groups at USBI. Following

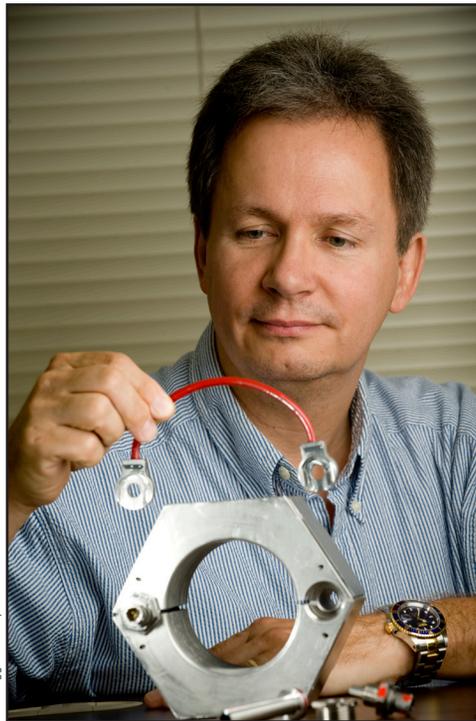
graduation, I joined USBI as a structural design engineer, traveling to the Kennedy Space Center, Fla., after each shuttle flight to participate in the postflight assessment of solid rocket boosters. During those assessments, and later during modifications of blast container hardware, I had the opportunity to work closely with Marshall's Pyrotechnics group and learned a lot from the people there. In 1991, I was hired by NASA to work on pyrotechnics in the Structural Design Division of Marshall's Engineering Directorate.

I was mentored in pyrotechnics by some excellent "old timers" and learned much by working pyrotechnic hardware issues on the space shuttle external tank, solid rocket booster and reusable solid rocket motor. As my experience increased, I also worked on numerous pyrotechnic designs for new launch vehicles, space telescopes and payloads. In 2003, as part of the Columbia

Accident Investigation, I was a member of the solid rocket booster working group. Afterward, I left the labs and joined the solid rocket booster Chief Engineers Office, where I helped lead the redesign of the external tank/solid rocket booster bolt catcher and the NASA standard initiator, or NSI, pressure cartridge, as part of the Return to Flight effort. The NSI pressure cartridge contains common gunpowder which is initiated by an electro-explosive device and is used at solid rocket booster separation to generate pressure to break the separation bolts which connect the booster to the external tank. Finally I moved to the RSRB Project Office in 2006 where my team is responsible for all of the pyrotechnic devices on the RSRB.

Have you developed any technology? What influenced you to develop this technology?

Every time we change a design to improve performance and validate performance with testing, we are developing technology and furthering our knowledge on this unique hardware. One recent design change I have been heavily involved with was the incorporation of a pyrotechnic



David Higginbotham/NSFC

Joe Gentry

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crossover between the two redundant pyrotechnic cartridges in the frangible hold-down nuts. There are four hold-down studs on each booster that must exit the aft skirt within 200 milliseconds of shuttle lift-off or the stud can get trapped and generate large loads throughout the integrated vehicle. Although it only takes one pyrotechnic charge to break the nut, if both charges are not electrically initiated at near the same time, the hold-down stud exit velocity is slowed significantly. This new device takes some of the excess detonation energy from the first pyrotechnic charge to be initiated and transfers that detonation to the other cartridge within 30-50 microseconds — typically before the second firing current reaches that charge. The time lag between the two redundant firing signals has been as great as 500 milliseconds in flight so the crossover will negate that large time lag and should significantly reduce hold-down stud hang-up. First conceptualized in 1982, we have spent the last three years refining and qualifying this design and it is now installed for the first time on STS-126. This was a tremendous effort with many technical challenges and could not have been accomplished without all of the help from Marshall's Engineering Directorate, Safety & Mission Assurance Directorate and our support contractors.

How does your expertise help Marshall in accomplishing its mission? How does it help the space program?

In my opinion, there will always be pyrotechnic devices on launch vehicles. It is hard to compete with the compactness, weight and energy efficiency of a pyrotechnic device. Sure, there are non-pyrotechnic devices and mechanisms, but typically they require lots of electrical power, have slow reaction times and don't have the reliability of pyrotechnic devices. Just look at one of the frangible hold-down

nuts on the booster. What else besides a pyrotechnic device could weigh around one-fourth pound and use as little as a 3.5 amp firing signal to break a nut rated to carry 1.6 million pounds of load – all within 10 milliseconds? Weight and power will always be challenges for launch vehicles and satellites, so I believe pyrotechnic devices and the ability to design custom devices for specific applications will definitely be required. Having this ability at Marshall, along with some research and development effort to develop newer technologies like low-shock pyrotechnic devices, will be of great benefit to our space program.

How critical is technology development and cultivation of technologists to the future of Marshall as a successful NASA center?

I believe this is very important to not just Marshall, but to the entire agency. As our designs are now required to be higher-performing, more robust and safer, technology development is critical in achieving these goals. I am still awe-struck by all of the amazing technologies developed for the Space Shuttle Program. We will need more of these technical "miracles" to reach the next level.

There are a lot of new areas in pyrotechnics that need further development to make our new vehicles do what we want them to do. This will take a lot of hard, but fun work. Luckily, Marshall has realized this challenge and recently hired some very talented engineers to develop the next generation of pyrotechnic devices. The Marshall pyrotechnics team we have now is one of the most knowledgeable and technically capable this center has had and this expertise is in demand by other centers as well.

Sanda Martel, an AI Signal Research Inc. employee who supports the Office of Strategic Analysis & Communications, conducted this interview for the Marshall Star.

STS-126

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engineers completed assessments of the work needed to get the telescope ready to fly. A data handling unit failed on Hubble in late September and caused the agency to postpone the STS-125 servicing mission, which had been targeted to launch Oct. 14.

Endeavour's STS-126 flight will feature important repair work to the space station and prepare it for housing six crew members during long-duration missions. The primary focus of the 15-day flight and four spacewalks is to service the station's two Solar Alpha Rotary Joints, which allow its solar arrays to track the sun. Endeavour will carry about 32,000 pounds to orbit, including supplies and equipment necessary

to double the crew size from three to six members in spring 2009. The new station cargo includes additional sleeping quarters, a second toilet and a resistance exercise device.

Also on board Endeavour will be two vital new pieces of equipment that Marshall Space Flight Center teams played a key role in developing and managing. The Water Recovery System is a water reclamation system that recycles crew urine and wastewater, and cabin humidity condensate through a series of rigorous treatment processes and filters, creating water clean enough to drink.

The second payload, EXPedite the PProcessing of Experiments, or EXPRESS, Rack 6, is the sixth in a series of racks already

supporting scientific experiments on the space station. They transport, store and support the multidisciplinary science experiments performed in the near zero-gravity conditions of the space station's orbital lab.

Ferguson will be joined on STS-126 by Pilot Eric Boe and mission specialists Donald Pettit, Steve Bowen, Heidemarie Stefanyshyn-Piper, Shane Kimbrough and Sandra Magnus. Magnus will replace space station crew member Greg Chamitoff, who has been aboard the station for more than five months. She will return to Earth during the next shuttle mission, STS-119, targeted to launch in February 2009.

Martel, an AI Signal Research, Inc. employee, supports the Office of Strategic Analysis & Communications.

Disabilities Program supports Marshall, visitors all year long

By Rick Smith

For Allan Day, manager of the Marshall Space Flight Center's Individuals with Disabilities Program, the end of October means the successful end of Disabled Employee Awareness Month — hosting speakers and visitors, planning events and celebrating the contributions of Marshall team members who have a variety of special needs and skills.

This year for Day, it even meant accepting an award: The Marshall Center was named Employer of the Year by the Huntsville Area Committee for the Employment of People With Disabilities, part of Alabama's Department of Rehabilitation Services. The annual award recognizes employers' commitment to provide leadership, education and services that benefit people with disabilities and improve their work environment.

But Oct. 31 is hardly a finish line. "At Marshall," Day said, "it's disability awareness all year long."

The center takes a two-pronged approach to this mission, he said: "We make all necessary, reasonable accommodations to serve disabled team members, regardless of the intensity or level of their disability, and we also strive to provide a safe, rewarding experience for visitors with impaired sight, hearing or mobility."

Ten-year plan

Day, whose program is part of the Office of Diversity & Equal Opportunity, works closely with Carl Williams, an engineering specialist in the Marshall Center's Facilities Office, to continuously assess special needs across the center. In 2007, the two offices partnered on a 10-year strategy plan for facility maintenance and upgrades that will optimize the center's accessibility and convenience for people with mental and physical disabilities, in keeping with the Americans with Disabilities Act of 1990.

Day and Williams review the plan frequently, and make site inspections to assess which buildings and areas need immediate attention — whether it's a fresh coat of blue paint for handicapped-only parking spaces, or installation of wheelchair ramps and automatic door-openers. They also consult during planning and construction of new buildings, to ensure they're state-of-the-art for handicapped accessibility.

In 2008 alone, the Marshall Facilities team has so far upgraded more than a dozen doors in three buildings, added high-visibility signs to disabled-only parking spaces and more than doubled Marshall's fleet of mobility scooters. A dozen of the durable, electric scooters now are available for short-term use on the center, permitting easier travel between buildings for team members with temporary or permanent mobility issues. Day praises Marshall organizations and contract firms that make their own mobility assistance arrangements for their employees with disabilities.



David Higginbotham/MSFC

Allan Day is manager of the Individuals with Disabilities Program and Disabled Veterans Program, part of Marshall's Office of Diversity & Equal Opportunity.

Individualized support, tailored to each employee's needs, is available. Day and Williams handle requests for special workstation tools and equipment — from special desks and other furniture to Braille readers, text-readout telephones, amplified headsets and adaptive computer software. Thanks to a partnership with the U.S. Department of Defense's Computer Electronics Accommodations Program, some of that equipment is free.

Disabled visitors: Team effort pays off

Day's office also looks for opportunities to serve Marshall's disabled guests, whether they're visiting on business, participating in on-center events or, most commonly, students on a tour.

Making the NASA experience come vibrantly to life for visitors who can't hear the roar of an engine or see the results of a science experiment is a challenge Day welcomes. He works with teams across Marshall to prepare activities that turn basic presentations and tours into multisensory experiences, giving blind visitors things to hear, deaf visitors things to see and tactile sensations — the feel of a moon rock, the shape of a scale-model rocket — to everyone.

Marshall team members are quick to help. When 21 students from the Tennessee School for the Blind in Nashville visited the center in October, workers at the Propulsion Research & Development Laboratory covered their labs with large-print and Braille labels. Each label explained a complex technology or highlighted elements of NASA's new Ares I rocket — soon to send a new generation of explorers to the moon and beyond. Marshall physicist Dr. Craig Moore, who is blind, talked with the visitors about his work, and students got to explore a scale mockup of the Ares I made with cans of soup and other foods, illustrating the comparative sizes of each rocket segment.

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Disabilities

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The enthusiasm of the Marshall team was exhilarating, Day said. Jason Quick, a human factors engineer with Triumph Aerospace Systems, set up the can model. Marshall engineer David Reynolds secured the free labels from the Alabama Center for Disability Services. Workers sprang for a pizza lunch for the students. Marshall engineers even spent time mulling over one student's troublesome hearing aid, and arranged to contact her audiologist about ways to improve the device and boost her range of hearing.

That kind of support is a primary reason the Tennessee School for the Blind has brought students to Marshall annually for more than 30 years, Day said. "We try to spark their interest in engineering or other technical careers," he said. "We encourage them to set their goals high. A disability doesn't mean you can't take part. And if you want to work for NASA someday, it can most definitely happen."

'I know the challenges'

Day is no stranger to the unique perspective of someone living with a disability. After a motorcycle accident in 1981 shattered

three of his vertebrae, he spent a year learning to walk again. In 2006, he blew out another disk while piloting a boat that took a high bounce across another boat's wake. Some days, he negotiates the corridors of Marshall pretty well on foot. Other days, he relies on his wheelchair.

So when the opportunity arose in 2005 to manage both the Individuals with Disabilities Program and the Disabled Veterans Program, Day seized the chance.

"I know the challenges, the hunger to work, to be productive and engaged," he said. "I've been very fortunate, and now I have this opportunity to give something back — to try to give others the same opportunities to excel."

He's proud to work for an organization with the same philosophy. "There are no stereotypes at Marshall, no antiquated mindset about people with physical or mental challenges," he said. "We don't look at the disability. Just the ability."

For more information about the Marshall Center's Individuals with Disabilities Program and NASA's commitment to serving the needs of its disabled employees and contractors, visit <http://eo.msfc.nasa.gov/iwd.html>.

Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

In celebration of NASA's 50th anniversary

Fifty years ago, the Little White House, located at 1520 H St. N.W. in Washington, served as the first site for NASA Headquarters. Agency leadership and staff occupied the structure from 1958 until October 1961, when Headquarters relocated to a more permanent site in Washington. Built in 1820 by Richard Cutts, the Little White House became the home of Mrs. Dolly Payne Madison, wife of U.S. President James Madison, in 1837. Named the Dolly Madison House, she lived there until her death in 1849. In 1886, the Dolly Madison House became the private Cosmos Club, the meeting place of the Philosophical Society of Washington.



Obituaries

Billy Thomas Faulkner, 78, of Tullahoma, Tenn., died Aug. 23. He retired from the Marshall Center in 1981 as an aerospace engineering technician. He is survived by his wife Frances Ruth Winland Faulkner.

Robert Thomas Thornton, 75, of Athens died Aug. 27. He retired from the Marshall Center in 1990 as a photographer. He is survived by his wife Bonnie H. Thornton.

Harold R. Coldwater, 82, of Ft. Myers, Fla., died Sept. 28. He retired from the Marshall Center in 1994 as the director of the facilities office. He is survived by his wife Joan Coldwater.

Mark Lionel Russell, 86, of Huntsville died Oct. 1. He retired from the Marshall Center in 1984 as a program analyst.

Foster A. Haley, 90, of Huntsville died Oct. 3. He retired from the Marshall Center in 1975 as a public affairs officer.

John R. Levinson, 75, of Huntsville died Oct. 8. He retired from the Marshall Center in 1988 as an engineer. He is survived by his wife Doris Levinson.

Oscar Thornton, 90, of Athens died Oct. 9. He retired from the Marshall Center in 1990 as an electronics technician. He is survived by his wife Kathleen Jones Thornton.

Huntsville and Marshall Center reveal scientific stature

By Dauna Coulter

During October, Huntsville and the Marshall Space Flight Center revealed their vibrancy as scientific centers, with the city and center hosting two symposiums that attracted scientists from all over the world.

The Sixth Huntsville Gamma-ray Burst Symposium 2008, held Oct. 20-23, drew more than 200 astrophysicists, including graduate students, from 25 nations to Huntsville.

The second event was the Physical Processes for Energy and Plasma Transport across Magnetic Boundaries workshop. This event provided a forum for conversation and debate about dynamic interactions within the electrically charged gases around the sun, in planetary magnetospheres and in the solar wind. This workshop brought about 100 scientists from around the world to the area Oct. 26-31.

Gamma-ray bursts, which fueled the discussions at the first event, are among the wildest expressions of the cosmos — extreme cosmic blasts of X-ray energy that reverberate across the universe, heralding the death of an extremely massive star and the birth of a black hole.

"Gamma-ray bursts have become one of the hottest areas of research in astrophysics today," said Gerald Fishman, an astrophysicist at Marshall and chair of the local organizing committee for the symposium. "They are compelling because they are the brightest objects in the universe. The bursts can be seen at great distances and can be used to study the most far-away regions of the universe."

More than four decades after they were discovered, gamma-ray bursts are still surrounded by mysteries. At the symposium, astrophysicists showcased their latest scientific theories about unanswered questions for consideration, debate and scrutiny.

Marshall has a rich history in studying and solving gamma-ray burst mysteries. Fishman, along with Chip Meegan, another Marshall astrophysicist, worked on the Burst and Transient Source Experiment, or BATSE, an instrument that rode on board NASA's Compton Gamma-ray Observatory in the mid-1990s and recorded thousands of bursts, mapping their distribution on the sky. Before that experiment, most researchers contended that these explosions were happening in Earth's own galaxy, the Milky Way. Some even believed that they originated in the outer reaches of Earth's solar system. Instead, the BATSE experiment indicated that gamma-ray bursts most likely originated from the farthest distances of the observable universe.

At the October gamma-ray symposium, Meegan presented new observations from the latest Marshall-developed burst instrument — the gamma-ray burst monitor that rides on the Fermi space telescope. The burst monitor has detected more than 70 bursts to date.

"After the big bang, the first waves of star formation should have produced a lot of supermassive stars, thought to be the progenitors of gamma-ray bursts," said Meegan. "But there seems to be a scarcity of explosions at large redshifts, or distances, corresponding to that early epoch of the universe. The burst

monitor is locating some 'missing' gamma-ray bursts."

The second October event, the Energy and Plasma Transport workshop, featured scientific presentations and discussions about interactions within and between neighborhoods — cosmic neighborhoods that is. These space neighborhoods, referred to more technically as boundary-layer interaction regions, are found, for example, around the sun, in planetary magnetospheres, the solar wind and astrophysical plasmas.

It may seem strange, but space — comprising all those "neighborhoods" among and surrounding the sun and the planets — is not empty. A large part of the universe is in the form of the fourth state of matter, electrically charged gases called plasma.

"In the plasma environments, the interactions between magnetic fields and ionized gases result in the coupling of energy and particles between systems and the acceleration of particles to high energy," said Dennis Gallagher, a physicist in the Space Plasma Physics Group in Marshall's Science & Mission Systems Office. "Many different forces come into play, and no one yet fully understands the details of how all these forces interact."

"Researchers from these different disciplines do not usually communicate with each other much, even though they share many of the same physics problems in their work," he said. "Our workshop helps them share approaches and solutions to understanding these important natural processes."

Two eminent NASA gamma-ray burst programs, Fermi and Swift, sponsored the gamma-ray burst event, and the Fermi Gamma-ray Burst team based at Marshall hosted it. Marshall, along with the Center for Space Plasma and Aeronomic Research, an organization established in 1986 to bring together solar-terrestrial space plasma researchers at the University of Alabama in Huntsville, jointly hosted the Energy and Plasma Transport workshop. They have hosted the event for the past 20 years.

Coulter, a Schafer Corp. employee, supports the Office of Strategic Analysis & Communications.



A Gamma-ray Burst Symposium attendee intently studies one of many posters displayed at the event.

Marshall volunteers needed for Alabama A&M University High School Senior/NASA Day on Nov. 8

By Megan Norris Davidson

The Marshall Space Flight Center and Alabama A&M University will combine studies, sports and spaceflight Nov. 8 for their annual student recruitment effort. They're looking for Marshall Center volunteers to highlight NASA programs and encourage high school seniors to pursue careers in engineering, math and science.

The annual Alabama A&M University High School Senior/NASA Day, cosponsored by the Marshall Center, attracts about 4,000 high school seniors from across the country. Events — including campus tours, academic sessions and entertainment by the Alabama A&M cheerleaders and marching band — will kick off at 7 a.m. in the university's Elmore Gymnasium. Dr. John Horack, manager of Marshall's Science & Mission Systems Office, will toss the coin at 1 p.m. to start the football match-up between

the Alabama A&M Bulldogs and the Prairie View A&M Panthers of Texas. The game will be held at Louis Crews Stadium on the Alabama A&M campus.

Fifty "Marshall Ambassadors" are needed at the event to help share information about the Marshall Center and NASA with students. Volunteers may sign up now to work the event. Two shifts are available: 7-10 a.m. and 10 a.m.-1 p.m. All volunteers will receive free admission to the game, free parking and a barbecue lunch. To sign up, e-mail Efram J. Hanson at efrem.j.hanson@nasa.gov or call 544-6340.

For more information, call Madeline Hereford in Marshall's Office of Diversity and Equal Opportunity at 544-7420.

Davidson, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Marshall Star Ad Form." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Nov. 13, is 4:30 p.m. Thursday, Nov. 6.

Miscellaneous

Three Ken Mobley limited edition Alabama prints, one signed by the "Bear," serious inquiries. 639-4280
KitchenAid washer, prestige model, large capacity, nine settings, almond. 880-2001
Light beige leather sofa, love seat, \$250. 206-0582
Thomas trains/vehicles, many Thomas-compatible sections of track, accessories, expandable train table, \$50. 895-6640
Peavey Rotor EXP electric guitar, Fender 28W practice amp, cherry red, \$325. 714-3742
Cherry entertainment center, retractable doors, VCR compartment, three lower doors, four storage racks, \$200. 683-1643
Microwave, 31-inch television, oak entertainment center, kitchen appliances. 658-5805
Giant breed metal dog crate, \$85. 425-3833
Griffin iTrip FM transmitter for iPod, third generation or iPod with dock connector, \$10. 348-5181
Coffee table, two matching end tables, wood and glass, \$75. 337-7943
Mirage speakers, two OM-7 towers, two Omnisat satellite speakers, stands, \$1,500. 679-2165

AKC Springer Spaniel puppies, born Sept. 23, four males available, \$350. 653-7016
KitchenAid Side-by-side refrigerator, almond, ice/water on door, 30"x36"x69". 468-4274
Amigo Lift handicap scooter lift for car, 200-pound capacity, \$400. 656-3196
Wooden dining table, chairs. 881-6388
House cleaning gift certificates, prices vary, leave message. 777-8595
Peco lawn vacuum, gas powered, rear mount for riding lawn mower. 509-7907
McLane reel mower, 20-inch, B&S engine, striping kit, \$400 obo. 679-8041
Eight-gun cabinet, locking main door, decorative glass, drawer, \$45. danglenn2001@yahoo.com or 652-5902
Imperial Candlewick crystal, 21 stems, six salad plates, six coasters, miscellaneous items. 883-8257
Longaberger 4-quart casserole dish, sage, \$50 obo. 509-2536
AKC Weimaraner puppies, silver, males/ females, shots, \$350 cash. 347-2097
2001 Buffet Clarinet, stand, carrying case, box of reeds, \$800 obo. 783-6278
32-foot fiberglass ladder, \$175. 464-9408
CalSpa hot tub equipment, 4BHP motors/pumps, 220V heater, control pack, new flow switch. 828-1234
Four wheeler, red, \$3,000 obo. 783-4326
Acuity 260cc youth left-handed golf clubs, bag, stand, \$100. 882-3601
Garbage compactor, residential, brown, \$300 obo. 852-5595

Vehicles

2007 Mazda3, gray, rear spoiler, sunroof, 28k miles, \$15,000 obo. 425-3727
2006 BMW 325i, white/tan, loaded, 39k miles, \$22,900. 883-6894 or 468-6894
2005 Ford Taurus Five Hundred, AWD, leather, moon roof, pueblo gold, 44k miles, \$14,500. 975-1667

2005 Cadillac, STS-V8 4D, silver, loaded, 99k miles, \$12,500. 539-8230
2004 Chevrolet Colorado Z71, fully equipped, 12k miles, \$11,500. 890-0499
2003 Gas Club Car golf cart, beige, tan seat, windshield, \$2,375 obo. 682-6326
2002 Fleetwood Expedition motor home, 300HP Cummins diesel, Allison transmission, take up payments. 431-9898
2002 Dodge Grand Caravan ES minivan, DVD, leather, chrome wheels, electric sliding doors, \$5,200. 852-6952
2001 Jeep Cherokee, \$6,000 obo. 603-3466
1996 Ford Thunderbird, V6, power options, A/C, \$1,895. 464-8649
1996 Jeep Cherokee, 2WD, 230k miles, \$1,900 obo. 348-0391
1995 Nissan Maxima, V6, sunroof, 287k miles, \$2,340 obo. 656-2139
1994 Ford RV, Econoline 150, Mark III; 2001 Chrysler Concorde; 1991 Dodge Dakota truck. 828-4251
1972 Cutlass convertible, new top/upholstery/tires, 155k miles. 881-7357
BumbleBee Striker II, 60 HP Mercury, trailer, trolling motor, fish finder, photos available, \$4,600. 881-4565

Wanted

Bags of clean pine straw. 527-8116
Old garden tractor or 38"-45" riding mower, manual transmission, for parts. 880-6146
Free firewood, will cut/haul. princehuntland@bellsouth.net
Kerosene heater, for homeless family that live in a two-room tent. 776-7248
Bagger for JD riding mower, 42" deck. 527-8116

Lost

Nintendo DS game system, black case, games, Redstone Golf Course. 851-7406



Moving toward CFC goal of \$600,000

The Marshall Space Flight Center's 2008 Combined Federal Campaign runs through Dec. 12. To date, Marshall's civil service work force has contributed \$323,547 toward the center's \$600,000 goal.

"After four weeks into the campaign, we are a little over halfway toward our target," said Pat Benson, CFC executive chairperson. "In comparison to last year, we are behind by \$20,000 in donations, but there are still six more weeks to reach and exceed the goal.

"More than 500 Marshall employees and contractors have volunteered for community services, helping 10 of the local agencies supported by CFC," noted Benson. "Also, more than 270 Marshall team members have scheduled bus tours to CFC agencies. The actual participation for bus tours is down from previous years. We encourage people to schedule the tours, but actual attendance is very important.

"Thanks to all of those who have already supported this campaign with their time, talents and treasures. We still have a long way to go to reach our goal, but I am very optimistic that we will end this campaign successfully."

For more information on bus tours or Community Service Days, or to make a donation, visit <http://cfc.msfc.nasa.gov>.

Marshall encouraged to take part in Veterans Day parade Nov. 11

Marshall Space Flight Center team members can show their appreciation for the U.S. armed forces by taking part in Huntsville's annual Veterans Day parade Nov. 11.

The event, sponsored by Huntsville television station WAFF, begins at 11 a.m. in downtown Huntsville. This year's parade theme is "Courage, Sacrifice, and Duty." The Marshall Center's Mobile Theater, used to inform the public about NASA through a variety of space exploration videos, will be featured in the parade.

Participating Marshall team members are encouraged to wear clothing with the NASA logo and meet at 10 a.m. in the parking lot on Clinton Avenue next to the Coca-Cola Company. Shuttle vans will be provided for those who cannot walk the two-mile route.

For more information on the parade or for specific accommodations, contact Allan Day, Marshall's equal employment manager for Disability and Veterans Programs, at 544-4079 or allan.v.day@nasa.gov.

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