Marshall Star, November 28, 2012 Edition

MARSHALL STAR

In This Week's Star ⊟

Only Two More Weeks to Donate to CFC!

The Marshall Space Flight Center's 2012 Combined Federal Campaign runs through Dec. 15. So far, Marshall's workforce has contributed $432,329 toward the center's $700,000 goal. To donate, or to browse a comprehensive list of qualified charitable organizations, visit here. Contractor team members also may make a one-time donation through their CFC organization leads or assigned monitors. For a complete list of organization leads, visit the CFC ExplorNet page.

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Marshall Team Members Get Involved in CFC

By Megan Davidson

A group of Marshall Space Flight Center team members recently took a tour of the Care Assurance System for the Aging and Homebound, or CASA, of Madison County. The nonprofit agency, which is supported by Combined Federal Campaign donations, provides services to individuals age 60 and older, and to the homebound of all ages. Marshall team members, including Marshall Center Director Patrick Scheuermann, in the foreground, check out the CASA Community Garden. All produce from the CASA garden -- which is planted, maintained, harvested and distributed entirely by volunteers -- is delivered to elderly and homebound clients throughout Madison County. The Marshall team's visit to CASA was one of a number of CFC bus tours, in which team members visit charitable organizations to get a first-hand look at how CFC dollars help these organizations in the community. (NASA/MSFC/Emmett Given)

Participating in a CFC bus tour, Marshall Center team members recently visited the Huntsville Hospital Regional Neonatal Intensive Care Unit. Combined Federal Campaign donations help buy life-saving equipment for the facility, which is designed to address the needs of critically ill babies, premature newborns or infants requiring close observation. To donate, or to browse a comprehensive list of qualified charitable organizations, visit here. (NASA/MSFC/Andrea Nunn)

Team members from Marshall's Office of Strategic Analysis & Communications held a CFC workday Nov. 20 at Habitat for Humanity of Madison County. The CFC-funded organization helps build homes for low-income families. From left, Herman Fitzgerald, Wes Brown and Dan Woodard measure and cut roof decking for a home. (NASA/MSFC/Marianne Higgins)

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Student Teams to Build and Fly Rockets for Annual NASA Rocketry Challenge
By Rick Smith

Organizers of the NASA Student Launch Projects have announced the 57 student teams whose inventive creations will soar skyward in April during the agency's 2012-13 rocketry challenge.

Image right: Students watch a rocket lift off at the NASA Student Launch Projects' spring 2012 launchfest at Bragg Farms in Toney, Ala. (NASA/MSFC)

Representing schools in 26 states around the country, participating teams each will design and build a large, high-powered rocket, complete with a working science or engineering payload and capable of flying to the target altitude of 1 mile.

The rocketry challenge, like numerous other NASA Education initiatives, is designed to encourage young people to pursue careers in the science, technology, engineering and mathematics, or STEM, fields.

"Every year, the NASA Student Launch Projects build on our students' classroom studies in an energizing, exciting way," said Tammy Rowan, manager of the Academic Affairs Office at the Marshall Space Flight Center, which organizes the event. "It's great fun, but it also reflects the real-world complexity of planning missions, building flight hardware and completing tough pre-flight checks and reviews.

"We hope the experience is so unforgettable it leads many of them to become the nation's next generation of scientists, engineers and space explorers," she added.

Twenty-one middle school and high school teams will take part in the Student Launch Initiative, which is non-competitive. Thirty-six college and university teams will compete in the University Student Launch Initiative -- with a $5,000 first-place award provided by ATK Aerospace Group of Salt Lake City going to the winner.

"We are proud to sponsor NASA's student launch competition for the sixth year," said former astronaut Kent Rominger, now vice president of business development for ATK's Space Launch Division. "Each year we are impressed with the level of skill and knowledge these students exhibit. We are very optimistic and excited about the caliber of individuals that could become our future workforce."

Building the powerful rockets and designing and integrating the onboard engineering or science payloads are only two parts of the challenge. Teams also must maintain detailed preliminary and post-launch reports, and build and regularly update a public website to document their rocket-building experience. Each team also must develop an educational engagement program to inspire and educate younger students in their local school system and community.

In 2013, the teams will travel to Marshall, where their rockets will undergo a series of intensive reviews and safety inspections -- a smaller-scale version of the rigorous processes applied to the nation's space vehicles. The culmination of their work is set for April 21, when the students launch their creations one by one into the skies over northern Alabama. Each will be seeking the elusive 1-mile altitude goal, as well as a variety of annual awards for vehicle design, engineering excellence and team spirit.

The 26 states represented are Alabama, California, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky,

Massachusetts, Michigan, Minnesota, Mississippi, Nebraska, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Tennessee, Texas, Virginia, Washington and Wisconsin.

The NASA Student Launch Projects are sponsored jointly by NASA's Human Exploration and Operations and Science mission directorates.

Smith, an Analytical Services Inc. employee, supports the Office of Strategic Analysis & Communications.

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In Position

After recently adding more instrumentation to the assembly, workers at the Stennis Space Center install a J-2X power pack in the center's A-1 test stand for more testing. The power pack, a system of components on the top portion of the engine, has been hot-fire tested 10 times for a total of 4,162 seconds. The engine and power pack are built by Pratt & Whitney Rocketdyne of Canoga Park, Calif., to support the Space Launch System, managed at the Marshall Space Flight Center, and will usher in a new capability in human space exploration, taking astronauts beyond low Earth orbit. (NASA/SSC)

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Marshall Holiday Rocket-Lighting Set Nov. 30

Come spread a little holiday cheer at the annual Marshall Space Flight Center rocket-lighting ceremony! The festive event will be held at 4:45 p.m. Nov. 30 at Marshall's Rocket Park. Guests can enjoy hot chocolate and cookies, while listening to a few holiday favorites sung by children from the Marshall Child Development Center. A special visitor from the North Pole also will join in the celebration.

All members of Team Redstone -- which includes the Marshall Center and U.S. Army organizations on Redstone Arsenal -- are invited to attend.

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The Face of Mission Success at Marshall is:
Malcolm Wood
Deputy Chief Operating Officer in the Marshall Space Flight Center's Michoud Assembly Facility Office

Image right: Malcolm Wood (NASA/Michoud)

- **Years at Michoud:** 35 years
- **Education:** Bachelor's degree in computer engineering technology, University of Southern Mississippi, 1993
- **Responsibilities:** My primary responsibility is the daily operations and management of the Marshall Center's Michoud Assembly Facility. I manage a team of civil service employees that are the central point of contact for all tenants at Michoud such as the U.S. Coast Guard, U.S. Department of Agriculture, NASA's Orion Program, Space Launch Systems Program, and including contractors like Lockheed Martin Co. and Boeing Co. I represent NASA, Marshall and Michoud for special events, local news media, State of Louisiana and the City of New Orleans governmental agencies, along with giving special tours of the facility for various dignitaries from all aspects of local, state and federal agencies. Michoud oversees the NASA Manufacturing Support and Facility Operations Contract, which provides the daily management, operations and maintenance for the 832-acre facility. I am keenly aware of the awesome responsibility to have Michoud in a ready state for the manufacture of NASA's next generation of space vehicles, the Space Launch System and Orion spacecraft. This requires close coordination between a massive construction program and the onsite prime contractor to ensure budgets and schedules are not impacted in order for the 2017 launch to be successful. The responsibility to continually reduce the cost to operate Michoud requires constant innovative solutions to control operations costs and provide space solutions for new tenants that do not interfere with existing NASA projects.

- **How does your work at Marshall support the agency's goals?** It is my objective to provide the SLS Program with the most cost-effective site to manufacture the next launch vehicle. This includes manufacturing, testing, assembly, and checkout and transportation of the vehicle from Michoud to Kennedy Space Center for launch. Our office also provides the maximum practical opportunities for other industries to participate in the benefits of doing business at Michoud, thus offsetting cost to NASA through sharing the cost of operating Michoud with other entities.
- **Have you found any unique, cost-saving or collaborative processes or innovations in the last year?** The establishment of a Cooperative Agreement with the City of New Orleans Fire Department has been instrumental in reducing the overall cost at Michoud. This innovative idea not only reduced the cost, but also increased NASA's medical first responders and improved the overall efficiency and effectiveness of fire protection for Michoud. The Michoud team has worked closely with SLS to support the application of existing external tank tools and the identification of resources. This collaboration allows for the efficient advancement of construction and tooling activities, and assists the streamlining of the manufacturing process to ensure schedule and budget success for the project.

- **What do you hope to accomplish in your role this fiscal year?** I hope to complete the re-activation of Michoud facilities, meet or exceed construction activities schedules and budgets, and continue the growth of new business opportunities for Michoud without impacting the project. I hope to complete the full utilization of all space available, thus helping to offset the operations cost. I plan to provide the leadership and initiative to play an important role in overall SLS implementation, and be ready for any challenges arising from a manufacturing startup after almost three years of minimal activity at the site.
- **What is the biggest challenge you face?** The biggest challenge is to make sure the SLS Program has all the facilities, maintenance and operations available for startup and continuous manufacturing of the rocket. This requires staying abreast of the frequent changes in manufacturing postures, creatively applying available funding to activate dormant manufacturing areas, and keeping the team clearly focused.
- **Do you partner outside Marshall?** Yes, we continuously deal with Johnson Space Center for the Orion Program, Lockheed Martin operations in Denver, Colo., and Stennis Space Center for continuous process improvements that can be used at Michoud. We also deal with the different centers that have impacts and/or particular parts for the SLS Program like the Ground Support Equipment from Glenn Research Center and Langley Research Center. The team is continuously dealing with the state and local government on items surrounding economic development, small business initiatives, economic impacts to the region, and a strong coalition between the Gulf states' regional aerospace industries. Marshall offers a diverse, history-rich environment in dealing with the various aspects of space travel. There is a lot of synergy in our capabilities between Michoud and Marshall such as materials labs, metrology, welding process improvements, etc. Marshall is very supportive in providing subject-matter experts in spaceflight hardware manufacture, quality control and various other elements required to meet the Michoud objective for the agency.
- **What is your favorite memory at Michoud?** I was awarded the NASA Exceptional Bravery Medal in 2006 by former NASA Administrator Michael Griffin for my role, along with 39 others, for protecting Michoud during Hurricane Katrina. That day was a very special event.
- **On a personal note, how do you spend your leisure time?** At this stage of beginning a new project for NASA, leisure time has been a commodity. I travel a lot between home and work, which allows a lot of time for audio books. I usually go through several books per month, and of interest are personal health, history and improving my business acumen. On weekends, I enjoy continuing to remove dead trees and overgrown bushes from my property, which are remains from Katrina. I have become a handyman over the years with the renovation of my home and property. As a result of Michoud's continuous operations, I remain on call for any emergencies on a 24/7 basis due to any safety, security or operational issues.

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Huntsville Alabama L5 Society Hosts SLS Program Manager Todd May

The Huntsville Alabama L5 Society, or HAL5, will host Marshall Space Flight Center's Space Launch System Program Manager Todd May on Dec. 6 at 7 p.m. as he presents "Going Boldly Beyond: Progress on NASA's Space Launch System." The free event, open to the public, will be held at the Huntsville-Madison County Public Library's main auditorium at 915 Monroe St.

May will update the community on the status of the nation's new heavy-lift launch vehicle, now starting its second year of work and set for its maiden voyage in 2017. Responding to a challenging political and budgetary environment, the SLS Program is making visible progress on its hardware design, development and testing, with the first flight hardware being manufactured for launch on the Orion Multi-Purpose Crew Vehicle's flight test in 2014. May, a long-time proponent of cutting-edge science and human exploration of the solar system, looks forward to discussing how SLS is turning plans into progress with Huntsville's space advocacy community.

HAL5 is the Huntsville chapter of the National Space Society, and works to keep Huntsville and its neighbors informed of the positive benefits of space research. Members share the enthusiasm that space development can stimulate our world with immeasurable benefits in the areas of education, energy, the environment and industry.

For more on HAL5 and the event, visit www.HAL5.org.

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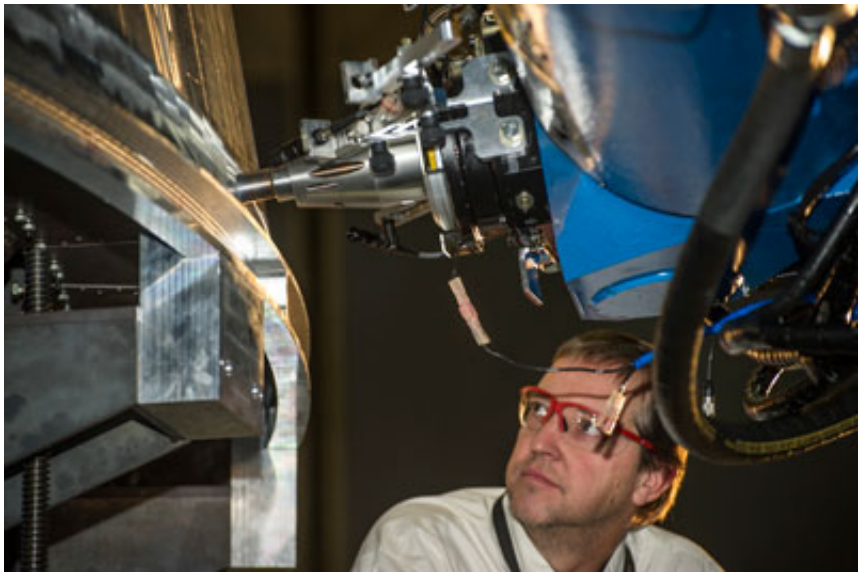
Building Expertise for Orion and SLS Flight Hardware

Engineers at the Marshall Space Flight Center conduct their first circumferential weld of the "pathfinder" version of the adapter design that will be used on test flights of the Orion spacecraft and the Space Launch System or SLS. The adapter eventually will connect the Orion spacecraft to the SLS. It will be flight tested on Exploration Flight Test-1 in 2014, when it will be used to connect the Orion spacecraft to a Delta IV heavy-lift rocket. The pathfinder is being used to develop the processes and techniques that will be used on flight hardware. For more information on this welding, watch the video linked here. (NASA/MSFC/Emmett Given)



Andre Paseur, a welding technician at the Marshall Center, inspects a circumferential weld of the pathfinder version of the adapter design that will be used on test flights of the Orion spacecraft and the SLS. The circumferential weld on the pathfinder is difficult because the welding machine must control a complex weld path. The data and experience gathered from this weld are invaluable to Marshall Center engineers as they prepare to perform the same task on flight hardware in 2013. (NASA/MSFC/Emmett Given)

Ronnie Renfroe, a materials engineering technician at the Marshall Center, guides a circumferential weld of the pathfinder version of the adapter design that will be used on test flights of the Orion spacecraft and the SLS. The SLS will launch NASA's Orion spacecraft and other payloads beyond low Earth orbit, providing an entirely new capability for human exploration. The Marshall Center manages the SLS Program for the agency and works closely with the Orion Program office at the Johnson Space Center and the Ground Systems Development and Operations Program, which manages the operations and launch facilities at the Kennedy Space Center.

(NASA/MSFC/Emmett Given)

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Space Shuttle Booster Added to Propulsion Park, Highlights Marshall's Historic Role in Propulsion System Development

By Tracy McMahan

A space shuttle solid rocket booster is the latest addition to the "propulsion park" outside Building 4205, the Propulsion Research & Development Laboratory at the Marshall Space Flight Center.

Image right: Center operations personnel add a nose cone to the space shuttle solid rocket booster added to the propulsion park display outside Marshall's Building 4205, the Propulsion Research & Development Laboratory. (NASA/MSFC/Fred Deaton)

The booster symbolizes Marshall's role in the historic shuttle program. It joins a F-1 engine -- the largest rocket engine ever flown and the engine that powered the Saturn V, sending humans to the moon. The propulsion park also features a Nerva nuclear rocket engine that Marshall engineers tested in the 1960s, and an aerospike engine tested as part of late 1990s technology demonstrators. The propulsion park provides a good indication of today's work inside the Propulsion Research & Development Laboratory, which boasts facilities for testing software and hardware for the Space Launch System, the nation's next heavy-lift launch vehicle, as well as facilities that help engineers devise and test advanced propulsion technologies and concepts.

"The shuttle booster and the F-1 engine represent Marshall's propulsion contributions to our nation's human exploration endeavors," said Tom Williams, the head of the Propulsion Systems Department in Marshall's Engineering Directorate. "Our center's expertise in solid and liquid propulsion systems runs deep, and these articles represent the hard work and accomplishments of our government and contractor teams. The Nerva and aerospike engines represent propulsion research

and development that will eventually bring us the systems needed for in-space exploration."

Four joined segments of the booster arrived at the Marshall Center by truck Sept. 19. Most recently, NASA used these solid rocket motor segments to test a new interior insulation that prevents the metal case from melting as the solid fuel burns. The new insulation is needed to replace obsolete materials, and it will be used for five-segment boosters being developed for the 70-metric-ton SLS vehicle scheduled to make its first flight in 2017. Firefighting companies are investigating the benefits of using the insulation in protective equipment. To complete the booster, a 12-foot-diameter, 6-ton aft skirt arrived at Marshall on Oct. 23 by a railhead revived to provide an additional method for transporting large hardware to and from Redstone Arsenal.

Image left: On Nov. 13, cranes lifted a solid rocket booster, with parts flown on more than 30 shuttle missions, into its final position in the Building 4205 propulsion park that can be visited by Marshall team members and visitors. (NASA/MSFC/Fred Deaton)

"Our Marshall center ops team was proud to help transport the aft skirt, assemble the booster components and complete construction of the booster display," said Steve Doering, director of Marshall's Office of Center Operations. "Many Marshall employees and visitors feel strong ties to the space shuttle, and now they can see real flight hardware that propelled the shuttle on numerous historic missions."

This solid rocket booster may be a static display now, but the various parts helped propel more than 30 shuttle flights including the first space shuttle mission, STS-1, servicing missions to the Hubble Space Telescope, and numerous Spacelab science missions.

McMahan is a public affairs officer in the Office of Strategic Analysis & Communications.

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U.S. Army Gen. Dennis Via Meets with Center Director Patrick Scheuermann, Tours Marshall Center

The U.S. Army Materiel Command's commanding general, Gen. Dennis Via, left, visits the North High Bay of Building 4755 on Nov. 15 during a tour of the Marshall Space Flight Center with his wife, Linda Via, second from left, and Center Director Patrick Scheuermann, second from right. Bob Bagdigian, right, branch chief of the Environmental Control and Life Support System, or ECLSS, Development Branch in Marshall's Engineering Directorate, discusses how ECLSS supports life onboard the International Space Station. To learn more about this system that was designed, constructed and tested by the Marshall Center, visit here. Via also visited the South High Bay to learn about welding technology for NASA's Space Launch System, and the Payload Operations Center in Building 4663 to glimpse the round-the-clock support provided to space station science. (NASA/MSFC/Emmett Given)

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Tune in to NASA Technology Days Nov. 28-29 Via UStream

NASA's Technology Days Showcase will take place in Cleveland, Ohio, on Nov. 28-29. Participants from NASA, industry and academia will discuss strategy development, partnerships, and methods to foster technology transfer and innovation during the three-day event. NASA officials will discuss the agency's upcoming technology initiatives, technology transfer and strategic partnerships.

Employees will be able to watch the showcase via UStream. For details and the complete showcase agenda, visit the NASA Technology Days website.

Find this article at:

http://www.nasa.gov/centers/marshall/about/star/index.html