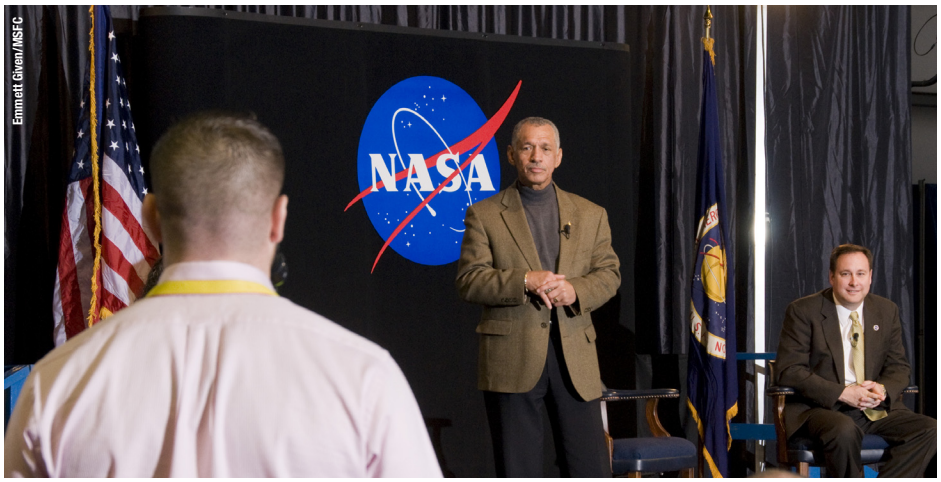
National Aeronautics and Space Administration

MARSHALL STAR

Serving the Marshall Space Flight Center Community

Feb. 18, 2010

NASA Administrator visits Marshall Feb. 10



NASA Administrator Charles F. Bolden Jr. listens to a question from a member of the audience during his all hands meeting with the Marshall Space Flight Center work force Feb. 10. Bolden visited the center to discuss NASA's proposed fiscal 2011 budget submitted to Congress by President Obama. Seated at right is Marshall Center Director Robert Lightfoot.

Final test of solid rocket motor to be conducted Feb. 25

The Space Shuttle Program will conduct the last ground test for a space shuttle four-segment solid rocket motor Feb. 25, at Alliant Techsystems facilities in Promontory, Utah.

The two-minute static test of a full-scale solid rocket flight support motor will be the 52nd motor test for the program – conducted to ensure the safe fly-out of the four remaining space shuttle missions.

The first test was conducted in July 1977.

First U.S. sample processed in Materials Science Research Rack

By Janet Anderson

On Feb. 2, the first materials science sample supporting a U.S. investigator was processed in NASA's Materials Science Research Rack aboard the International Space Station.

The rack allows for the in-orbit study of a variety of materials – including metals, ceramics, semi-conductor crystals and glasses. The first sample was a small, solid rod of composite aluminum and silicon processed at high temperatures to produce an alloy.

Development of the research rack was a cooperative effort between the Marshall Space Flight Center and the European Space Agency.

Materials science is an integral part of developing new, safer, stronger, more durable materials for use throughout everyday life. The goal of studying materials processing in space is to develop a better understanding of the chemical and physical mechanisms involved, and how they differ in the microgravity environment of space.

"Because there is no buoyancy in space, materials can be developed that have

*See **Rack** on page 4*

Marshall engineer to be honored with 'Trailblazer' award for mentoring students in fields crucial to NASA missions

By Megan Norris Davidson

Marshall Space Flight Center engineer Chris Randall will be honored Feb. 18 for his career achievements at Marshall, including efforts in mentoring minority students in science, technology, engineering and mathematics – fields crucial to NASA missions.

Chris Randall

Randall, an aerospace engineer in the Engineering Directorate's Valves, Actuators & Ducts Design & Development Branch, will receive the "Trailblazer" award at the Black Engineer of the Year Awards ceremony in Baltimore.

Randall works with the Marshall Center's Office of Academic Affairs as a mentor and recruiting assistant. A graduate of Alabama A&M University in Huntsville, he helps students there with senior engineering design projects, and emphasizes the importance of technology-driven careers.

"I think it's important to spread the word to young minority students interested in technical fields of study that there are so many terrific opportunities out there – including what we do here at Marshall," Randall said. "Students, especially those in underserved schools, need positive role models who will help them get exposure to and learn about careers in science, technology, engineering and math."

At Marshall, Randall supports design and development of various propulsion system components for launch vehicles. He also is a participant in NASA's Foundations of Influence, Relationships, Success and Teamwork program, or "FIRST" – a year-long NASA leadership development program.

He became a co-op at the Marshall Center in 2005, and joined Marshall full-time after he graduated from college in 2006. During his career, he has worked on life support systems for the International Space Station, component design and development for the Ares I rocket, and supported the space shuttle program at NASA's Kennedy Space Center, Fla.

Randall was nominated for the "Trailblazer" award by his supervisor, Kevin Ward.

"Chris has demonstrated extraordinary dedication and enthusiasm in efforts to motivate, encourage and inspire students to pursue technical careers," Ward said. "He has done this while serving as an excellent employee in the challenging field of aerospace engineering. Chris is truly a trailblazer – creating paths for others."

The Black Engineer of the Year Awards are presented annually during the Science, Technology, Engineering, and Math Global Competitiveness Conference. Since 1986, the conference has recognized the outstanding achievements of black professionals in companies across America.

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

Unity through diversity

Ann McNair, director of the Office of Center Operations at the Marshall Space Flight Center, speaks to members of the center's work force Feb. 10 about Marshall's 50-year history of diversity. The Lunch & Learn event, held in Morris Auditorium in Building 4200, was part of the center's Black History Month celebration. Marshall will join Redstone Arsenal organizations for another Black History Month event Feb. 22 at 10 a.m. in the Sparkman Center, and will conclude the month's activities with its "Donuts, Dialogue & Diversity" event Feb. 25 at 8:30 a.m. in the lobby of Building 4200. For more information about these events, visit Inside Marshall or the "NASA Marshall" Facebook page.

Shuttle astronauts complete third spacewalk; landing set for Feb. 21

By Sanda Martel

Mission managers have added one day to space shuttle Endeavour's STS-130 mission to the International Space Station to allow time to relocate environmental control racks in the Tranquility module. The first landing opportunity is Feb. 21 at NASA's Kennedy Space Center, Fla.

Astronauts have successfully completed the three scheduled spacewalks of the mission. They installed the Tranquility node during the first spacewalk Feb. 11. Tranquility, the final major U.S. portion of the station completed and installed, will provide additional room for crew members and many of the space station's life support and environmental control systems.

The Marshall Space Flight Center's Node Integration Office has provided technical assistance and coordination on Tranquility, and also coordinated the development of the mated launch configuration requirements for the cupola, which was installed during the second spacewalk Feb. 13. The seven-window cupola houses a robotic control station and windows that provide a panoramic view of Earth, celestial objects and visiting spacecraft. With the node and cupola installed, the orbiting laboratory is approximately 90 percent complete.

During the final spacewalk, completed Feb. 17, astronauts removed covers and launch locks on the exterior of Tranquility and the cupola exterior to ready them for activation. They also removed insulation from the cupola's windows and released bolts that held the covers in place during launch, enabling astronauts to open the shutters from inside for an unprecedented view of Earth and space.

Marshall's Nodes Integration Team also is supporting the Mission Control Center at Johnson Space Center in Houston during the mission. Those activities include providing in-orbit support operations during the relocation of the cupola from Tranquility to the space station and moving environmental racks into Tranquility.

The racks include two Water Recovery System racks and an Oxygen Generation System rack, also developed and managed by Marshall engineers. These systems recycle urine and wastewater for crew use and generate oxygen for the crew to breathe.

Martel, 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 "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Feb. 25, is 4:30 p.m. Thursday, Feb. 18.

Miscellaneous

Tennis racquets, Babolat 118y, $125; Wilson K, $100. 509-8531

Fiberglass camper shell, silver, fits Ford Ranger short bed pickup, $350. 457-6023

Alltel Blackberry Pearl 8130 phone, red, will work on Verizon, $70. 797-7251

AT&T Tilt PDA/cell phone, two docking stations, extended battery pack, cables, $100. 714-9795

Entertainment center, 6'x4', TV opening is 28"x28", $50. 881-4418

Sharp over-the-range microwave, white, mounting template, hardware, instructions, $75. 309-0077

CKC Yorkies, ready March 6, two females, two males, parents on site, taking deposits, $550-$700. 425-8381

Sears 10" table saw, $300. 603-6309

Yamaha grand piano, 5'3", GH-1 series, black high polish, $7,500. 931-625-0671

Prom dress, Flirt by Maggie Sottero, size 2, call for pictures, $150. 990-3561

Cipriani bowl chandelier, golden nickel, 6-plus-3 lights, 33"Wx 24.5"H, pic available, $100. 777-1810

Painted metal ramp, 33'x3', dual railings, two 4'x4' platforms; stair elevator chair, approximately 8'rise-9'run. 652-5177

Cherry entertainment center, $150; 27" Toshiba TV, $50; Wii Guitar Hero 3, guitar controller, $25. 527-3486

Electric mobility scooter, $850 obo. 533-7234

5-piece Sonor drum set, lots of accessories, $500. 205-394-1307

AKC Weimaraner puppies, 8 weeks old, tails docked, claws removed, M-$350, F-$400. 347-2097 or 287-2488

Whole house attic fan with shutter, 22X26, 3.3 amp, $50. 527-0110

Vehicles

2006 Cherokee 29-foot travel trailer, queen bed, double bunks, super slide. 431-3897

2005 Hybrid Honda Accord, gray, 255HP, V6-IMA, navigation, loaded, warranty, 31/42MPH, $16,400. 464-9871 or 850-496-7329

2004 28' Rockwood travel trailer, ducted AC/heat, dinette slideout, equalizer hitch, $13,750. 738-0302

1998 Stingray, RS180, walk-thru bowrider, new 140hp Mercruiser, other new equipment, $9,500. 640-6427

1994 Yamaha V-Star classic, 1100cc, $5,650. 603-6309

1992 GMC Diesel pickup truck, white, 150k miles, $3,400 or will trade for tractor. 379-4010

1985 Ford F-150, 4X4, SW-base, hunter green, tan interior, chrome wheels, new engine/tires, $2,950. 259-1523

1973 Dodge Charger, 400/2bbl, 111k miles, $8,000 obo. 651-5847

Wanted

Scientific calculator. 776-7248

Used fitness equipment, Smith machine, treadmill, weights. 502-9092

Starting new carpool from Cullman area. 205-602-6868

Houses to clean or elderly to assist. 651-4723

Used Queen-size headboard and footboard. 990-3561

Used youth/teen soccer jerseys, shorts or shoes for mission trip to Central America. 828-1234

Two sturdy bar stools with backs. 759-3009

Found

If you want to claim any of these items, call 544-4680.

HP IPAQ in black leather case, Building 4487, A-wing.

Dell laptop charger, Building 4601, Room 2116.

U.S. currency, Building 4200, first floor ladies room.

Silver bracelet, Building 4201, south parking lot.

14k ring with small colored stone, Building 4200, north parking lot.

Shuttle Buddies to meet Feb. 22

The Shuttle Buddies will meet at 8:30 a.m. Feb. 22 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

Rack *Continued from page 1*

a stronger or more regular structure, and understanding this structure can help to produce stronger materials on the Earth," said Dr. Frank Szofran, a microgravity materials science project manager and discipline scientist in Marshall's Materials and Processes Laboratory.

The sample was processed in the Materials Science Laboratory, a furnace system inside the Materials Science Research Rack that was developed and is operated by the European Space Agency. U.S. investigators have samples processed in the facility and collaborate with the larger European science team. The European teams are currently examining the first two samples brought home from the space station.

From left, John Kramer, Materials Science Research Rack operations analyst with COLSA Corp.; Matthew Goodman, a graduate student at the University of Arizona in Tuscon; and Dr. Robert Erdman, co-investigator on the sample, review procedures for processing the first U.S. sample in the Materials Science Research Rack on board the International Space Station.

Professors David Poirier and Robert Erdman of the University of Arizona in Tuscon, and professor Surendra Tewari of Cleveland State University in Cleveland, Ohio, are collaborating on this study. "The model-alloy under study by the U.S. investigators is closely related to alloys used to produce castings," said Poirier. "The main focus, however, is to study the role of zero gravity and to contrast the samples made under similar conditions on Earth.

"In addition, the space experiments are particularly relevant to the manufacture of high-temperature alloys that are in high-temperature gas-turbines used to power aircraft and to produce electric power," Poirier added.

The U.S. materials science sample will be returned to Earth by space shuttle Endeavour's crew during the STS-130 mission, which launched Feb. 8. Once the materials sample is returned to Earth, it will be delivered to the Marshall Center for initial examination. The sample then will be taken to Cleveland State University for additional analysis.

The Materials Science Research Rack is a new facility added to the space station at the end of 2009. It is about the size of a large refrigerator, measuring 6 feet high, 3.5 feet wide and 40 inches deep. It weighs about 1 ton. The rack includes a furnace in which materials sample cartridges are processed at temperatures of up to 2,500 degrees Fahrenheit. Sample cartridges are inserted in the furnace one at a time by members of the space station crew for processing. Once a cartridge is in place, the experiment can be run by automated command initiated from the ground. Processed samples are returned to Earth as soon as possible for testing.

For more information about science on the space station, visit http://www.nasa.gov/mission_pages/station/science/.

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

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