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July 23, 2009

Bolden and Garver confirmed by U.S. Senate

NASA Headquarters news release

Charles Frank Bolden Jr. was confirmed by the U.S. Senate on July 15 as the 12th administrator of the National Aeronautics and Space Administration. Lori Beth Garver was confirmed as NASA's deputy administrator.

As administrator, Bolden will lead the NASA team and manage its resources to advance the agency's missions and goals.

"It is an honor to have been



Charles Bolden Jr.



Lori Beth Garver

nominated by President Obama and confirmed by the Senate to lead this great NASA team," Bolden said.

"Today, we have to choose. Either we can invest in building on our hard-earned world technological leadership or we can abandon this commitment, ceding it to other nations who are working diligently to push the frontiers of space.

"If we choose to lead, we must build on our investment in the International Space Station, accelerate development of our next generation launch systems to enable

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Endeavour's crew continues mission; NASA engineers study foam loss

By Sanda Martel

While NASA celebrated the 40th anniversary of the first moon landing this week, space shuttle astronauts docked to the International Space Station continued their challenging work to outfit the orbiting outpost.

The 16-day STS-127 mission began July 15 when space shuttle Endeavour launched from the Kennedy Space Center, Fla., to deliver the final pieces of the Japanese Kibo Laboratory and spares that will keep the space

See STS-127 on page 8

Marshall celebrates Apollo 11 anniversary

See full coverage, pages 4-5



Some 7,000 Marshall Space Flight Center employees, contractors, retirees and their families gathered July 20 at the U.S. Space & Rocket Center in Huntsville to celebrate the 40th anniversary of the Apollo 11 moon landing. Guests visited the Marshall tent to receive free MoonPies and souvenir cups, courtesy of the Marshall Exchange.

Marshall stirs up Ares I upper stage development dome

By Craig Dunn

On the launch pad the Ares I rocket will tower more than 32 stories high. The sheer size of the rocket elements to be welded is one reason the new monster-sized welding machines at the Marshall Space Flight Center are being used to develop NASA's newest fleet of spacecraft.

Using a metal joining technique called friction stir welding, the Ares Projects team at the Marshall Center has completed welding the first demonstration dome being developed to define manufacturing processes for the upper stage of the Ares I – the rocket that will launch explorers to the moon, Mars and beyond in coming decades.

The innovative welding process produces high-strength, high-quality welds that are uniformly bonded together, a vital requirement for next-generation launch vehicles and hardware designed for long-term space travel.

The dome, completed July 14, marks the first development hardware assembled for the Ares I upper stage liquid hydrogen fuel tank.

"Our team is working to implement new techniques and processes that will make the Ares vehicle one of the safest, most technologically advanced spacecraft ever flown," said Danny Davis, manager of the Ares I Upper Stage Element Office. "The completion of this first demonstration dome represents a milestone in our continuing development of the Ares I upper stage."

The hydrogen dome assembly took place at the Marshall Center's Weld Development Facility in Building 4755, home to two new, full-scale welding tools. The robotic weld tool and the vertical weld tool are the largest, most sophisticated and versatile tools of their kind.

"With all of our new, large weld tools we are developing the processes or blueprints necessary to assemble the different elements of the Ares I upper stage," said Bob Carter, lead weld development facility engineer in the

Advanced Manufacturing Processing Facility.

To illustrate the machine's size and capability, Carter offered what he called an extreme example. "Let's say we wanted to use this technique to repair a helicopter door," he said. "This machine is so big, we could literally bring in the whole helicopter and place it on the welding turntable."

Previously, friction stir welding has been limited to use on straight linear welds, such as the longitudinal seam welds joining barrel panels on the space shuttle external tank. The new vertical tool will continue to provide this capability, but can accommodate the much larger Ares hardware.

With the new robotic weld tool, engineers will be able to perform friction stir welds on more complex shapes and angles, including tanks and other structures with complex curvature. On the Ares I upper stage, all the major structural welds, including welds on the difficult angles required for bulkhead assembly and the rocket's large metallic structures, will be performed using friction stir welding.

With the completion of the hydrogen dome, engineers now will begin manufacturing the common bulkhead, used to join the liquid hydrogen and liquid oxygen tanks. This step in the manufacturing development process is expected to take one year and will be followed by barrel, or side panel, assembly.

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



A hydrogen fuel tank dome is hoisted off the world's largest robotic welding tool by Marshall Center engineers. The dome is the first development hardware assembled for the Ares I upper stage.

LRO spacecraft gets its first look at Apollo landing sites

From a NASA news release

NASA's Lunar Reconnaissance Orbiter, or LRO, has returned its first imagery of the Apollo moon landing sites. The pictures show the Apollo missions' lunar module descent stages sitting on the moon's surface, as long shadows from a low sun angle make the modules' locations evident.

"This is a big milestone for LRO, just a few days shy of the 40th anniversary of Apollo 11," said Todd May, manager of the Lunar Precursor Robotic Program Office at the Marshall Space Flight Center. "Soon we'll be able to build computer models of the lunar surface that can tell us where meteor impacts are more severe than others. That's going to be useful to the next set of astronauts that land on the moon."

The Lunar Precursor Robotic Program Office at Marshall manages the two robotic missions to the moon: LRO and the Lunar Crater Observation & Sensing Satellite, or LCROSS. Marshall provides mission oversight, technology planning and flight assurance. LRO will help NASA identify safe landing sites for future explorers, locate potential resources, describe the moon's radiation environment and demonstrate new technologies. LCROSS will seek a definitive answer about the presence of water ice at the lunar poles.

The Lunar Reconnaissance Orbiter Camera, or LROC, was able to image five of the six Apollo sites, with the remaining Apollo 12 site expected to be photographed in the coming weeks.

The satellite reached lunar orbit June 23 and captured the Apollo sites between July 11 and 15. Though it had been expected that LRO would be able to resolve the remnants of the Apollo mission, these first images came before the spacecraft reached its final mapping orbit. Future LROC images of these sites will have two to three times greater resolution.

To view the new images, visit <http://www.nasa.gov/LRO>.

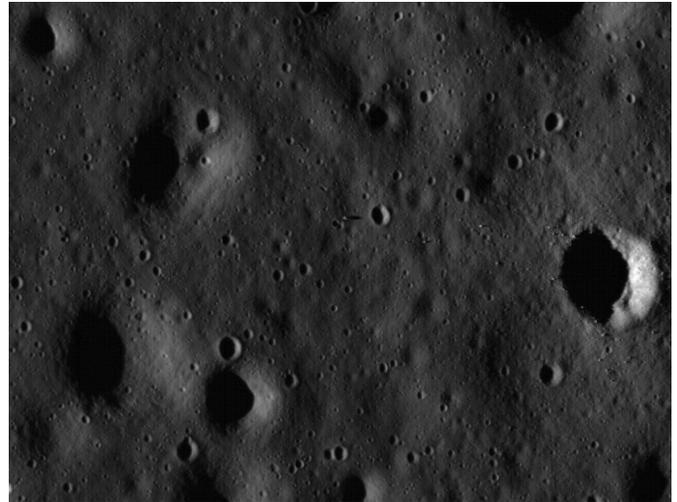
"The LROC team anxiously awaited each image," said LROC principal investigator Mark Robinson of Arizona State University. "We were very interested in getting our first peek at the lunar module descent stages just for the thrill – and to see how well the

cameras had come into focus. Indeed, the images are fantastic and so is the focus."

Although these pictures provide a reminder of past NASA exploration, LRO's primary focus is on paving the way for the future. By returning detailed lunar data, the mission will help NASA identify safe landing sites for future explorers, locate potential resources, describe the moon's radiation environment and demonstrate new technologies.

"Not only do these images reveal the great accomplishments of Apollo, they also show us that lunar exploration continues," said LRO project scientist Richard Vondrak of the Goddard Space Flight Center in Greenbelt, Md. "They demonstrate how LRO will be used to identify the best destinations for the next journeys to the moon."

The spacecraft's current elliptical orbit resulted in image resolutions that were slightly different for each site but were all around 4 feet per pixel. Because the deck of the descent stage is about 12 feet in diameter, the Apollo relics themselves fill an area of about nine pixels. However, because the sun was low to the horizon when the images were made, even subtle variations in topography create long shadows. Standing slightly more than 10 feet



LRO image of Apollo 11 landing site

above the surface, each Apollo descent stage creates a distinct shadow that fills roughly 20 pixels.

The image of the Apollo 14 landing site had a particularly desirable lighting condition that allowed visibility of additional details. The Apollo Lunar Surface Experiment Package, a set of scientific instruments placed by the astronauts at the landing site, is discernable, as are the faint trails between the module and instrument package left by the astronauts' footprints.

Launched on June 18, LRO carries seven scientific instruments, all of which are currently undergoing calibration and testing prior to the spacecraft reaching its primary mission orbit. The LROC instrument comprises three cameras – two high-resolution Narrow Angle Cameras and one lower resolution Wide Angle Camera. LRO will be directed into its primary mission orbit in August, a nearly-circular orbit about 31 miles above the lunar surface.

Goddard built and manages LRO, a NASA mission with international participation from the Institute for Space Research in Moscow. Russia provided the neutron detector aboard the spacecraft.

For additional information, visit, <http://lroc.sese.asu.edu>.

APOLLO 11 ANNIVERSARY

Celebrating the past, preparing for the future

Marshall Center employees, contractors, retirees and their families enter the Davidson Center for Space Exploration, where they joined several thousand others celebrating the anniversary of Apollo 11.



David Higginbotham/MSFC



David Higginbotham/MSFC

Clara Maehlmann, daughter of Marshall engineer Rick Maehlmann, inspects a keepsake 40th anniversary cup while crowds enjoy live music by Tina Swindell and the Valley Cats. Maehlmann, a Jacobs Engineering contractor supporting Marshall's Engineering Directorate, was among thousands of Marshall team members who brought their families to the Space & Rocket Center for the event.

Dr. Fred Leslie, who flew as a space shuttle payload specialist on STS-73 in 1995, signs autographs for visitors at the celebration. Leslie and fellow shuttle astronaut Dr. Jan Davis, in the center background also signing autographs, were among numerous guests of honor during the event. Leslie continues to conduct science research at the Marshall Center. Davis, the former director of Marshall's Safety & Mission Assurance Directorate, retired from NASA in 2005.



David Higginbotham/MSFC

APOLLO 11 ANNIVERSARY



Retired NASA engineer Heinz Struck, a member of Wernher von Braun's original rocket development team, talks with WAFF-TV anchor Liz Hurley, who reported the event live from the Davidson Center for Space Exploration. The celebration drew coverage from all four Huntsville network affiliates and the Huntsville Times.

To enhance the day's festivities, the Marshall Center added 21 unique exhibits to the existing space hardware and memorabilia inside the Davidson Center. Visitors thronged the vast hall, with its full-sized, authentic Saturn V rocket displayed overhead; watched movies and video celebrating the achievements of NASA and the Marshall Center; and toured the space museum and outdoor rocket park.



Retired NASA engineer DeWitt Westrope, who worked on the Saturn V program during the Apollo era, was among dozens of Marshall team members past and present who volunteered at exhibits and display booths during the July 20 event. They talked with visitors about the center's historic work, from development of the Saturn V rocket that launched the first explorers to the moon, to the Ares rockets that will send a new generation of explorers there – and beyond – in years to come.

expansion of human exploration, enhance NASA's capability to study Earth's environment, lead space science to new achievements, continue cutting-edge aeronautics research, support the innovation of American entrepreneurs, and inspire a rising generation of boys and girls to seek careers in science, technology, engineering and math."

Bolden's confirmation marks the beginning of his second stint with NASA. His 34-year career with the Marine Corps included 14 years as a member of NASA's Astronaut Office. After joining the office in 1980, he traveled to orbit four times aboard the space shuttle between 1986 and 1994, commanding two of the missions. His flights included deployment of the Hubble Space Telescope and the first joint U.S.-Russian shuttle mission, which featured a cosmonaut as a member of his crew.

During his astronaut career, Bolden also drew technical assignments as the Astronaut Office safety officer; technical assistant to the director of Flight Crew Operations; special assistant to the director of the Johnson Space Center; chief of the Safety Division at Johnson (overseeing safety efforts for the return to flight after the 1986 Challenger accident); lead astronaut for vehicle test and checkout at the Kennedy Space Center; and assistant deputy administrator at NASA Headquarters. He was inducted into the U.S. Astronaut Hall of Fame in May 2006.

Immediately prior to Bolden's nomination for the NASA administrator's job, he was employed as the chief executive officer of JACKandPANTHER LLC, a small

business enterprise providing leadership, military and aerospace consulting, and motivational speaking. A resident of Houston, the 62-year-old South Carolina native earned a Bachelor of Science degree in electrical science from the U.S. Naval Academy in 1968. He completed flight training in 1970 and became a naval aviator, serving as a combat pilot in Southeast Asia and later, as a test pilot. Bolden retired from the Marine Corps in 2003 with the rank of major general.

Like Bolden, Garver's confirmation as deputy administrator marks the second time she has worked for NASA. Her first stint at the agency was from 1996 to 2001. Initially, she served as a special assistant to the NASA administrator and senior policy analyst for the Office of Policy and Plans, before becoming the associate administrator for the Office of Policy and Plans. Reporting to the NASA administrator, she oversaw the analysis, development and integration of policies and long-range plans, the NASA Strategic Management System and the NASA Advisory Council.

As deputy administrator, Garver will be NASA's second in command. She is responsible to the administrator for providing overall leadership, planning and policy direction for the agency. Garver will represent NASA to the Executive Office of the President, Congress, heads of government agencies, international organizations, and external organizations and communities. She also will oversee the work of NASA's functional offices, including the Office of the Chief

Financial Officer, Office of General Counsel and Office of Strategic Communications.

"I am very excited about the opportunity to serve under Charlie Bolden's leadership," Garver said. "My previous five years at NASA exposed me to the incredible talent of the workforce there. The unbelievable achievements of this team over its 50-year history are unmatched. I look forward to working with Charlie and the NASA team to make our agency work as effectively as it can for the American people."

A 48-year-old Michigan native, Garver earned a bachelor's degree in political science and economics from Colorado College in 1983. Her focus immediately turned to space when she accepted a job working for Sen. John Glenn from 1983 to 1984. She since has served in a variety of senior roles in the nonprofit, government and commercial sectors.

From January 2001 until her nomination as NASA's deputy administrator, Garver was a full-time consultant as the president of Capital Space, LLC, and senior advisor for space at the Avascent Group. In these roles, she provided strategic planning, technology feasibility research and business development assistance, as well as merger, acquisition and strategic alliance support, to financial institutions and Fortune 500 companies.

For a detailed biography of Bolden, visit http://www.nasa.gov/about/highlights/bolden_bio.html.

For a detailed biography of Garver, visit http://www.nasa.gov/about/highlights/garver_bio.html.

Marshall, A&M working to develop future NASA engineers



David Hageman/NASC

Touring Alabama A&M's Civil Engineering Structures Laboratory are, from left, Dr. Pabitra Saha, chair of the institution's Department of Civil Engineering; David Pett, technical assistant to the engineering dean; Sam Digesu, Ground Operations and Logistic Branch chief of the Marshall Center's Mission Operations Laboratory; Dan Dumbacher, director of Marshall's Engineering Laboratory; and Jay Onken, manager of Marshall's Mission Operations Laboratory.

The Marshall Space Flight Center is working to enhance its relationship with Alabama A&M University in Huntsville to strengthen the school's programs to develop future NASA engineers.

NASA Administrator Fellowship Program Fellow Elaine Duncan of Marshall recently led a group of students, faculty members and Marshall team members on a tour of Alabama A&M's School of Engineering, Technology and Computer Science, including the Mechanical Engineering Composite Research and Experimental Laboratory, and the Wind Tunnel Air System. The fellowship program is designed to enhance the professional development of NASA employees and faculty at minority institutions.

Marshall representatives from the Engineering Directorate, Ares Projects and the Office of Diversity & Equal Opportunity participated in the tour.

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, July 16, is 4:30 p.m. Thursday, July 23.

Miscellaneous

Large executive computer desk for home office, \$125. 683-7185

Titleist "Scotty Cameron" Newport 2 putter, \$200; circular dinette table, four padded swivel chairs, \$25. 881-1249

Sony 32-inch flat screen CRT TV, digital converter, \$125. 458-0370 or 538-8525

Executive credenza/file cabinet, solid wood, four XL file drawers, extended desk top, \$125. 895-2959

Boy's bedroom furniture, twin headboard, frames, night stand, desk, chair, shelf, chest of drawers. 479-4926

DP weight machine, bench press, leg lifts, arm pulls, 300 pounds free weights, \$100. 651-5847

18HP B&S riding mower, 46-inch cut, needs wheel bushings. 679-8499

American Bulldog, NKC registered, 9 months old. 759-7492

Craftsman/Honda EZWalk mower, \$75; Craftsman professional table saw, \$100; Craftsman 10" miter saw, stand, \$125. 679-9383

Mario Kart DS, \$15. 478-320-5612

Labrador Retrievers, AKC registered, DNA certified, first shots, wormed, all colors, \$200. 729-1871

Leather Golf Cart bag, \$75. 615-417-3157

Lateral file wood cabinet, lockable, two drawers, ball bearings, Tuscan brown, Westmount, Costco #354136, \$125. 233-0705

"The Tales of Beedle the Bard," Amazon Collector's Limited Edition, \$100. 883-8483

PS3-80G, HDMI cable, one wired/three wireless controllers, three games, five Blu-ray movies, \$500 firm. 652-1114

Dryer rack for front load dryer, \$15; small microwave, \$15. 975-3711

Meade LX90 telescope, 8 inches, UHTC, CCD camera, tripod, power supply, AutoStar, eight eyepieces, \$1,400. 426-5351

Nikon D60 DSLR, zoom ED lens (not kit), LowePro backpack, polarizing filter, \$500. 508-4379

Vehicles

2007 Sidney Outback 28-foot Fifth Wheel camper, \$19,500. 679-2410

2007 Explorer, loaded, black, 60k miles, 14,900 neg. 423-309-8926

2006 Chrysler Pacifica Touring, red, third-row seat, 24k miles, \$14,500. 797-1300

2005 Honda Element EX, five speed, gray, 74,500 miles, \$11,000. 278-1974

2005 Ford Five Hundred SEL, black paint, tan upholstery, 51,300 miles, \$10,500. 651-0668

2002 Dodge Ram 2500, 4X4, quad cab, short bed, white. \$17,000. 615-417-3157

2000 Mercedes ML430 SUV, leather, sunroof, entertainment package, navigation, \$7,500 obo. 520-2802

1999 Fleetwood Bounder 36' Class-A motor home, slide out, \$33,900 obo. 564-9829

1995 Ranger bass boat, 150 HP Johnson, loaded, \$9,500. 205-522-4502

1993 Acura Legend, white, 162k miles, \$1,950. 783-6127 or 420-5632

1992 Dodge Grand Caravan, white/gold, \$1,500 obo. 797-2653

Chevy Z71 4X4, loaded, 83k miles, \$16,750. 509-3208

1998 Cadillac Deville, 130k miles, \$3,000 obo. 652-1495

1985 restored F-150 truck, 4X4, hunter green, short wheel base, lots of add ons, \$2,800. 259-1523

Fishing/hunting boat, 35 HP Evinrude motor, trolling motor, trailer, \$1,500. 232-8555

Wanted

City Select Version 5 software to load on Garmin GPS-5 personal navigator device. 616-1562

Electrical work to do, wiring houses, garages, yard lights, adding/removing switches, plugs, lights. 468-8906

Shuttle Buddies to meet July 27

The Shuttle Buddies will meet at 8:30 a.m. July 27 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

Michoud transitions facility to Jacobs Technology

Members of the Michoud Assembly Facility Transition Board signed the certification of transition June 25 to turn over manufacturing support and facility operations management of Michoud to Jacobs Technology of Tullahoma, Tenn., on July 1.

The facility previously had been managed by Lockheed Martin for more than 25 years. Michoud supports several major projects for the Constellation Program, which is developing NASA's next generation of crew exploration and launch vehicles. For 35 years, the Space Shuttle Program has manufactured and built the external fuel tank at Michoud.

The Marshall Center oversees the management of the New Orleans facility.



Front row, from left, are Bill Gerstenmaier, associate administrator for NASA's Space Operations Missions Directorate, and Geoff Yoder, director of the Constellation Systems Division, who was sitting in on behalf of Doug Cooke, associate administrator for the Explorations Systems Missions Directorate. Back row, from left, are John Shannon, manager of the Space Shuttle Program; Sheila Cloud, Michoud transition manager, who retired from NASA on July 3; and Steve Doering, associate program manager for the Constellation Program, sitting in for Jeff Hanley, Constellation program manager.

STS-127 *Continued from page 1*

station operational after the shuttle's retirement.

The space shuttle external tank experienced several foam loss events during launch. Most of those were on the intertank – an unusual event because foam has seldom been lost in that area. Investigations are under way to better understand the cause of the foam loss.

Technicians and engineers from the Marshall Space Flight Center, the Kennedy Center and NASA's Michoud Assembly Facility in New Orleans have collected sections of foam insulation on the outside of external tank ET-132's intertank for evaluation, said John

Chapman, External Tank Project manager.

"Through a process called bond adhesion testing, 26 one-inch and one-half-inch samples were removed and sent to Michoud," Chapman said. They will be analyzed to validate the bonding characteristics of the foam and confirm a proper bond between the foam and metal primer, he said.

The results will be one of the factors that will determine when space shuttle Discovery will be attached to ET-132 and the twin solid rocket boosters. ET-132 is inside Kennedy's Vehicle Assembly Building. It is scheduled to

fly with Discovery on the STS-128 mission, targeted to launch in August.

The intertank is the "mechanical connection" between the liquid oxygen and liquid hydrogen tanks. Its primary functions are to provide structural continuity to the propellant tanks, serve as a protective compartment to house instruments, and receive and distribute thrust loads from the solid rocket boosters.

Managers have cleared Endeavour for landing, scheduled July 31 at Kennedy.

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

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