



# MARSHALL STAR

Serving the Marshall Space Flight Center Community

July 30, 2009

## Endeavour set to land July 31; preparations under way for next shuttle mission

By Sanda Martel

At Marshall Star press time, space shuttle Endeavour was targeted for landing at 9:45 a.m. CDT July 31 at the Kennedy Space Center, Fla.

The STS-127 mission to the International Space Station, which began with its July 15 launch, included five spacewalks. Astronauts installed the final piece of the Japanese Kibo Laboratory, the Japanese Experiment Module Exposed Facility – a “porch” where science experiments will be exposed to the extreme environment of space. They also delivered spare parts to keep the space station operational after the shuttle’s retirement.

Meanwhile, preparations continue for the next space

*See STS-127 on page 4*

## Marshall-managed Chandra program

## NASA celebrates Chandra X-Ray Observatory's 10th anniversary

*NASA Headquarters news release*

Ten years ago, on July 23, 1999, NASA's Chandra X-ray Observatory was launched aboard the space shuttle Columbia and deployed into orbit. Chandra has doubled its original five-year mission, ushering in an unprecedented decade of discovery for the high-energy universe.

With its unrivaled ability to create high-resolution X-ray images, Chandra has enabled astronomers to investigate phenomena as diverse as comets, black holes, dark matter and dark energy.

"Chandra's discoveries are truly astonishing and have made dramatic changes to our understanding

*See Chandra on page 5*

## ***STS-125 astronauts to visit Marshall Center on Aug. 6***



The STS-125 crew includes, from left, Mike Massimino and Michael Good, mission specialists; Greg Johnson, pilot; Scott Altman, commander; and Megan McArthur, John Grunsfeld and Andrew Feustel, mission specialists.

Space shuttle Atlantis astronauts who flew the STS-125 mission to repair and upgrade NASA's Hubble Space Telescope will visit the Marshall Space Flight Center on Aug. 6. They will present highlights of their mission in Morris Auditorium at 1 p.m., and an autograph session will follow from 2-2:30 p.m.

The May repair mission to Hubble – the fifth and final mission to extend the life of the orbiting observatory – included five spacewalks by crew members.

# THE FACE OF MISSION SUCCESS IS: Todd Holloway

*International Lunar Network Instrument manager and  
Launch Vehicle manager  
in the Science Research & Technology Projects Office*



- **Organization:** Science & Mission Systems Office
- **Joined NASA:** 1985
- **Education:** Bachelor's degree in industrial engineering, Auburn University, 1985
- **Responsibilities:** I work with NASA's Launch Services Program to develop the launch vehicle and ground processing requirements plans for the International Lunar Network mission. The lunar network will consist of a set of surface landers and instruments provided by NASA and other space agencies, forming a geophysical network on the moon in the next decade to gain understanding of the interior structure and composition. I also interface with the lunar science community to define the instrument requirements and manage overall implementation of the integrated instrument suite.
- **What have you enjoyed doing during your years at Marshall?** Working with and learning from the great teams doing Discovery missions; working on the Lunar Reconnaissance Orbiter/Lunar Crater Observation and Sensing Satellite launch package integration with the Atlas V; and working on the microgravity payload flights on the space shuttle and International Space Station. Being fortunate enough to have been part of the "end-game" through integration, test and launch processing helps me maintain perspective on how I should treat today's "to-do" list to ensure we're a "go" for launch later.
- **What is something people would be surprised to find out about you?** I learned to surf in Florida while working on LRO/LCROSS at the Kennedy Space Center.

## Marshall announces leadership changes

Marshall Space Flight Center Acting Director Robert Lightfoot has announced that Stephen C. Doering is serving as acting transition manager of the Michoud Assembly Facility. In addition to this new assignment, Doering is continuing to serve in his current position as Marshall's associate program manager of the Constellation Program.

Daniel L. Davis is serving as acting manager of Vehicle Integration. In Davis' absence, Teresa Vanhooser is serving as acting manager of Upper Stage, and Craig McArthur is managing the day-to-day operations.

All assignments are pending approval by NASA Headquarters.

## Systems Engineering Activity of the Year Award nominations now being accepted

NASA has issued a call for nominations for the 2010 Systems Engineering Activity of the Year Award.

The honor recognizes excellence in the application of system engineering practices that result in program or project success, and the development of new techniques or methodologies that advance the state of the art of systems engineering.

The winner will be honored Feb. 9-10 at the 2010 NASA Project Management Challenge conference in Galveston, Texas, southeast of Houston, home of the Johnson Space Center.

The management challenge is an annual NASA training event that brings together speakers, discussion panels, case studies and networking opportunities in program/project management, systems engineering, safety and mission assurance, team building and business management.

The deadline for nominations is Aug. 21. Please visit Inside Marshall for award eligibility criteria and for the nomination form. Please contact Phil Hall of Marshall's Engineering Directorate at 544-2525 for more information.

## Obituary

Andrew Braxton, 61, of Poplarville, Miss., died July 8. Braxton was an aerospace engineer in the Marshall Center's Safety & Mission Assurance Directorate.

# Prospective Eagle Scout spruces up Marshall's Rocket Park

By Kelsey Norris

When Boy Scout Michael Delano of Madison visited the Marshall Space Flight Center's historic Rocket Park last year with his father – senior systems engineer Kenneth Delano of the U.S. Army Missile Defense Agency at Redstone Arsenal – the rockets were not all he noticed.

“There was gravel everywhere, and no mulch around the plants,” said young Delano, a member of Greater Alabama Council Boy Scout Troop 350 and a sophomore at Catholic High School in Huntsville. Landscaping the area quickly became his Eagle Scout project, which he will complete this summer to earn the honor.

The rank of Eagle Scout is the highest scouting rank awarded by the Boy Scouts of America.

The 14-year-old's hard work began in January, long before he pulled the first weed. With the help of Nell Clemmons, a facilities support specialist at the Marshall Center, Delano completed all necessary safety training and obtained the proper security clearances to begin working



Prospective Eagle Scout Michael Delano, 14, tends the grounds around the Marshall Center's historic Rocket Park.

on the site. He launched the work in June. With help from family members and fellow Troop 350 scouts, Delano weeded the area, laid 20 cubic yards of mulch and planted 14, 1-gallon juniper bushes around the rockets.

Grounds maintenance personnel in Marshall's Facilities Management Office provided the mulch. Catbird Seat Garden Center in Madison, Ala., donated the plants.

Delano is learning a lot about himself as the project continues. “Procrastination was my biggest obstacle,” he said. “The project has taught me to work ahead and be more organized.”

He will continue to water the plants and maintain the area throughout the summer. He hopes the improvements to the park will strengthen the ties between the Marshall Center and the surrounding Redstone Arsenal community – both for those who frequent the park and for those who will visit in the future.

*Norris is a summer intern supporting the Marshall Center's Public & Employee Communications Office.*

## Marshall's Wellness Center celebrates avid member's 90th birthday

Marshall Space Flight Center retiree Bob Head and his wife, Isabella, recently celebrated his 90th birthday at Marshall's Wellness Center. Head, an aerospace engineer, retired from Marshall in 1974. The couple exercise regularly at the Wellness Center, which is operated by the Marshall Exchange. The center provides more than 18,000 square feet of indoor exercise and recreational space. It features approximately 125 pieces of weight and cardio equipment, two basketball courts and two racquetball courts. The center also offers intramural sports, such as volleyball and softball, exercise classes and massage therapy. For more information about the Wellness Center, visit the Marshall Exchange Web site at <http://exchange.msfc.nasa.gov/h&f.html> or call 544-0252.



shuttle mission, STS-128, which is targeted to launch in August from Kennedy. Space shuttle Discovery was moved to the Vehicle Assembly Building on July 26, where it will be joined to its external tank and solid rocket boosters and processed for launch.

That mission will deliver the Marshall-managed Materials Science Research Rack, or MSRR, that will allow for study of a variety of materials – including metals, ceramics, semiconductor crystals and glasses onboard the orbiting laboratory. STS-128 also will deliver the Leonardo Multi-Purpose Logistics Module containing life support racks and science racks. The Lightweight Multi-Purpose Experiment Support Structure Carrier, a cargo container for additional science experiments and spare parts, also will be launched. The mission will include two spacewalks.

NASA managers decided to collect samples of Discovery's external tank, ET-132, after several foam loss events occurred during shuttle Endeavour's launch. Most of those foam losses were on the intertank – an unusual event because foam has seldom been lost in that area. The intertank is the mechanical connection between the liquid oxygen and liquid hydrogen tanks. It primarily provides structural continuity to the propellant tanks, serves as a protective compartment to house instruments, and receives and distributes thrust loads from the solid rocket boosters.

Technicians and engineers from the Marshall Space Flight Center, the Kennedy Center and NASA's Michoud Assembly Facility in New Orleans removed 26 foam samples from the intertank. Through a process called

bond adhesion, or "plug pull" testing, the samples were analyzed to validate the bonding characteristics of the foam and to confirm a proper bond between the foam and metal primer underneath. Results indicated good foam bonding.

An additional 126 foam samples were removed from the intertank and tested to further validate ET-132's foam. Analysis showed all those samples also met foam adhesion requirements. The holes left by pulling the samples will be repaired using the standard "pour foam" repair technique.

No further testing of ET-132 is planned, said John Chapman, manager of Marshall's External Tank Project office. The tank has been cleared for mating to Discovery.

*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, Aug. 6, is 4:30 p.m. Thursday, July 30.

### Miscellaneous

Craftsman professional routing center, solid oak gossip bench, \$100 each. 679-9383

Electric hospital bed; 12-place china settings; two twin antique beds, make offer. 772-7262

Thomas the Train Figure 8 set, table, pictures available, will deliver, \$75. 518-9900

72-inch pink cultured marble vanity top, two integral sinks, cherry wood cabinet, \$250. 617-0750

Treadmill. 541-9071

36-inch Magnavox digital TV, tube, \$250 obo. 425-8467

Dresser, dark wood, \$200. 722-9989

Graco Travel System stroller, Graco Pack 'n Play Portable Playard, cherry blossom, \$225. 771-2030

Broyhill loveseat, navy blue with color flecks, \$100. 683-3398

Bassett king-size plush mattress set, \$200 obo. 859-0796

Appaloosa Gelding, 7 years old, 14.2hh, part-time lesson horse, English, some Western, \$1,500. 325-4111

Rabbit cages, approximately 2' x 2' x 18," \$12 each. 509-7907

One pair Acoustic Response series 707 audio monitor speakers, black, \$40. 883-0567

Solid maple table, six chairs, full-size bedroom set, twin antique mahogany beds, dishes/cookware/etc., make offer. 772-7262

New digital SLR filter dual pack, UV and adjustable polarizing filters, canvas pack, \$20. 527-8116

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

French antique double bed, armoire, beveled mirrored door, vanity, will sell separately, \$2,200 for all. 656-0826

TI-89 graphing calculator, \$50. 783-4703

PSE Nova compound bow, 12 Easton arrows, Scott release, hard case, Muzzy Broadheads, \$200. 586-2853

Twin traditional sofas, classic fabric upscale appearance, 88-inches long, \$200 each, \$350 both. 881-0520

AR-15 Bushmaster 16-inch barrel, standard front sight, \$100. 652-5902

### Vehicles

2007 Sidney Outback 28-foot fifth wheel camper, \$19,500. 679-2410

2007 GMC pickup, crew cab, towing package, custom camper, 11,200 miles, \$19,000. 434-2202

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

2006 Chrysler Pacifica Touring, black, third-row seat, DVD, leather, loaded, 100k-mile warranty, 68k miles, \$11,500. 566-4412

2006 Honda Accord EX-L, black, leather, four cylinder, auto transmission, 30 mpg, 84k miles, \$14,500. 931-993-8333

2005 Fisher 22.5-foot pontoon boat, 115 HP Mercury 4-stroke motor, trailer, \$16,000. 655-0599 or 582-8559

2005 F-150 Lariat, extended cab, bed cover, extras, \$16,700. 722-8064

2005 Kawasaki ZX10, teal green, Yoshimura pipe, seat cowl, seat, helmet, 10k miles, \$6,500. 797-0673

2005 Yamaha V-Star 650 Custom, black with chrome, 50 mpg, 950 miles, \$5,000 obo. 828-4452

2004 Motor home, R-Vision 33' Class-A, workhorse chassis, extended warranty, www.thewilletfamily.com/rv, \$55,000. 883-7021

2003 Tahoe 2WD, seats nine, second owner, cloth, 20 mpg, 83k miles, \$12,000. 723-8877

2002 Honda Odyssey, rear entertainment package, leather, burgundy, 180k miles, \$6,450. 536-9369 or 683-7185

2002 31' Fifth wheel, one slide-out, sleeps eight, many amenities, \$11,900. 721-1260

2000 Saturn, red, four door, \$3,600. 468-9377

1996 Yamaha Virago XV750, Cobra exhaust, 14,384 actual miles, \$1,500 firm. 885-2122

1992 Mazda B2600i automatic pickup truck, needs some mechanical/body repair work, \$700 obo. 288-6224

1985 GMC pickup, new 350ci GM replacement engine, power windows, \$6,000. 890-2128

Honda 200s three wheeler, \$650 obo. 527-8116

### Wanted

Euros at current exchange rate. 883-0567

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

Adult –size wakeboard. 721-0883

### Free

Boxer/Lab mix, 8 months old. 303-9698 or 351-6996

of the universe and its constituents," said Martin Weisskopf, Chandra project scientist at the Marshall Space Flight Center.

Marshall manages the Chandra program for NASA's Science Mission Directorate.

The science that has been generated by Chandra – both on its own and in conjunction with other telescopes in space and on the ground – has had a widespread, transformative impact on 21st century astrophysics. Chandra has provided the strongest evidence yet that dark matter must exist. It has independently confirmed the existence of dark energy and made spectacular images of titanic explosions produced by matter swirling toward supermassive black holes.

To commemorate the 10th anniversary of Chandra, three new versions of classic Chandra images will be released during the next three months. These images, the first of which was available July 23, provide new data and a more complete view of objects that Chandra observed in earlier stages of its mission. The most recent released image is of E0102-72, the spectacular remains of an exploded star.

"The Great Observatories program – of which Chandra is a major part – shows how astronomers need as many tools as possible to tackle the big questions out there," said Ed Weiler, associate administrator of NASA's Science Mission Directorate at NASA Headquarters in Washington. NASA's



Chandra image of E0102-72, the spectacular remains of an exploded star

other "Great Observatories" are the Hubble Space Telescope, Compton Gamma-Ray Observatory and Spitzer Space Telescope.

The next image will be released in August to highlight the anniversary of when Chandra opened up for the first time and gathered light on its detectors. The third image will be released during "Chandra's First Decade of Discovery" symposium in Boston, which begins Sept. 22.

"I am extremely proud of the tremendous team of people who worked so hard to make Chandra a success," said Harvey Tananbaum, director of the Chandra X-ray Center at the Smithsonian Astrophysical Observatory in Cambridge, Mass. "It has taken partners at NASA, industry and academia to make Chandra

the crown jewel of high-energy astrophysics."

Tananbaum and Nobel Prize winner Riccardo Giacconi originally proposed Chandra to NASA in 1976. Unlike the Hubble Space Telescope, Chandra is in a highly elliptical orbit that takes it almost one third of the way to the moon, and was not designed to be serviced after it was deployed.

The Smithsonian Astrophysical Observatory controls science and flight operations from the Chandra X-ray Center.

A list of Chandra's major scientific highlights is available at <http://chandra.harvard.edu/ten/>.

To view new images from Chandra and to learn more about the mission, visit <http://chandra.nasa.gov>.

# Department of Defense, Navy officials tour Marshall's Space Environmental Effects Facility



Chuck Semmel, left, a senior physicist in the Marshall Space Flight Center's Engineering Directorate, explains the operation of an environmental effects system to personnel from the Department of Defense and Navy Radioactive, Detection, Identification and Computation division. The group toured Marshall's Space Environmental Effects Facility in Building 4605 on July 22. Semmel, a contractor with InfoPro Corp. of Huntsville,

supporting the Engineering Directorate, shows how the ion-accelerator-based combined environmental effects system exposes spacecraft material to energetic protons and electrons, and ultraviolet light. These elements are present in the space environment, and can affect material properties over time. The group – in Huntsville for its annual meeting – toured Marshall radiation research facilities.

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