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Endeavour mission continues; landing set for March 26

From combined reports

Space shuttle Endeavour astronauts are continuing tasks at the International Space Station during the STS-123 mission, which include delivery and outfitting of the Japan Aerospace Exploration Agency's Kibo laboratory and the Canadian Space Agency's two-armed robotic system, known as Dextre. The mission includes five spacewalks.

Space shuttle Endeavour launched from the Kennedy Space Center, Fla., March 11, on a 16-day mission. Post-flight evaluations of the propulsion systems managed by the Marshall Center — the external tank, space shuttle main engines and solid rocket boosters — showed excellent performance, said Steve Cash, manager of the Shuttle Propulsion Office. The space shuttle arrived at the International Space Station on March 13.

The flight brought a new crew member to the station and will return another astronaut after spending nearly seven weeks on board the space station.

Landing for space shuttle Endeavour is scheduled for March 26 at the Kennedy Center. For more information about the STS-123 mission, visit http://www.nasa.gov/mission_pages/shuttle/main/index.html.



STS-123 Mission Specialist Rick Linnehan participates in the mission's third spacewalk.

Marshall team looks to the past to build for the future

By Dauna Coulter

Historian Stephen Ambrose's words, "The past is a source of knowledge, and the future is a source of hope," ring especially true for one engineering team at the Marshall Center. An Exploration Flight Projects Office team in the Science & Mission Systems Office is gleaning valuable information from the past to help develop the Launch Abort System for the Orion crew capsule, part of NASA's Constellation Program to send human explorers back to the moon.

With NASA's 50th anniversary this year, a look at the past is particularly relevant at this time.

In the 1960s, NASA's Gemini missions provided experience in long-duration spaceflight and paved the way for later, more advanced missions. Gemini's escape system, however, left something to be desired.

"If an escape became necessary, the astronauts would be ejected from the capsule as from an airplane ejection seat," said Axel Roth,

former associate director of the Marshall Center. "From talking to some of the astronauts back then, like Frank Borman, I found out that you only wanted to use that system if you could feel the vehicle blowing up under you — you might live through the ejection, but you would probably be badly hurt."

Apollo's Launch Escape System, designed to carry the crew away from the Saturn rockets if an emergency occurred on the launch pad, was much more sophisticated and a lot safer than Gemini's escape system.

"The Launch Escape System pulled the whole capsule off the stack, and although the g-loads would be high, you had a good chance of making it away safely with either no or minimal injuries," Roth said.

According to Stephen Gaddis, deputy manager for the Launch Abort System, Orion's Launch Abort System will be even better equipped to protect the crew.

See LAS on page 4

Lead driver for cancer survivors...

Marshall's Bennie Jacks named 'Local Hero' of BMW Ultimate Drive

By Megan Norris

Bennie Jacks will get behind the wheel of a brand-new BMW 700 Series on March 29.

No, it is not a birthday present or game show prize for Jacks, a management analyst for the Safety & Mission Assurance Directorate and a 41-year employee of the Marshall Center. But for every mile she drives, she will be raising money to help give someone the gift of life — just as she was given as a breast cancer survivor.

Jacks will be honored for her outstanding efforts toward the fight against the disease at the BMW Ultimate Drive, held locally at Century Automotive, 3800 University Drive, supporting the Susan G. Komen Breast Cancer Foundation. The organization is the world's largest grassroots network of breast cancer survivors and activists fighting to save lives, ensure quality care for all and raise money to find a cure.

Jacks has participated in the drive since it began 12 years ago. Through her cancer battle, she has become an avid volunteer and advocate for the Komen Foundation and the American Cancer Society, which led to her nomination for "Local Hero."

"To be named 'Local Hero' is indescribable," Jacks said. "It is such a big, big honor. Being involved in Komen Foundation and American Cancer Society activities and events makes it a joy to be around positive-thinking people who are trying to make life better for cancer patients, caregivers, family and friends. We celebrate, we remember and we continue to fight."

The BMW Ultimate Drive in Huntsville, open to the public, will be held on March 29 from 10 a.m.-6 p.m. For more information, visit www.komen.org, www.centuryauto.com or www.cancer.org.

On March 30, with 19 other pink ribbon-clad cars rallying behind her, Jacks will drive to Cordova, Tenn., in the BMW, personalized with her name and picture. The pink ribbon is the international symbol of breast cancer awareness. The group will take the cars to the Cordova Roadshow BMW dealership, where the next drive will take place.

The fleet of specially badged BMWs crisscross the country visiting participating BMW dealerships to invite people to get behind the wheel and help contribute to the breast cancer movement. For every mile driven, \$1 is donated to the Komen Foundation, with a minimum guaranteed donation of \$1 million. The drive started in February and will continue through December 2008.

Jacks believes she is alive today because of the staff at Marshall's Medical Center and the health benefits NASA offers its employees, including free mammograms.

Her cancer battle began in 2002, the year her father passed away from prostate cancer and leukemia. She was working as a program support specialist in the former Space Transportation Directorate,

now Ares Projects, when she decided to go for a checkup at the Marshall Medical Center.

She attributed being tired from the stress of grieving her father's death of a month before. A nurse, noticing she had not had a routine mammogram in three years, scheduled one at the Huntsville Breast Center. Jacks couldn't believe the results — they found a suspicious mass and confirmed it was cancer.

She became the fifth person in her family to have the disease. Her brother, Roy, lost his battle to colon cancer in 1993, the year after her sister-in-law, Jean, died from cervical cancer. Her sister, Pat, discovered in 2004 that she had kidney cancer, now in remission.

"I went through a range of emotions when I was diagnosed. Especially since I had seen my family members go through so much in their battles with cancer," Jacks said. "I didn't feel a lump and had not been sick or anything. But I was blessed to have a huge support system, including my co-workers at Marshall, that kept me positive and on the right track to recovery."

After undergoing a mastectomy in 2002 followed by medication treatment, her cancer is now in remission.

According to the American Cancer Society, half of all men and one third of all women will develop cancer in their lifetimes. Breast cancer is the most common type of cancer afflicting American women, so NASA researchers are working to improve Magnetic Resonance Imaging, or MRI, an ultrasound technology. Development of three-dimensional imaging software by NASA can help doctors perform biopsies and surgeries more accurately, with smaller incisions. To learn of more ways that NASA is combating breast cancer, go to <http://weboflife.nasa.gov/currentResearch/currentResearchGeneralArchives/breastCancer.htm>.

"Sometimes it doesn't hit home until it really hits home," Jacks said. "Early detection truly saved my life. A lot of people think cancer is a death sentence, but it's not."

"As weird as it may sound, I have been blessed through having cancer. I became much more involved in volunteering, serving on committees and providing support to other survivors. I know each dollar that goes to cancer research may prevent someone else, including my granddaughter, from going through it. And that is my driving motivation," she said.

Norris, an ASRI employee, supports the Office of Strategic Analysis and Communications.



Bennie Jacks

Marshall's John Lassiter supports development of Alabama A&M graduate engineering program

By Megan Norris

A new graduate program in materiel engineering is coming to Alabama A&M University in Huntsville this fall, and John Lassiter, a structural dynamics test engineer in Marshall's Structural Dynamics Test Branch of the Test Laboratory, was an integral part of its development.

In 2006, the university decided to add a graduate program to its School of Engineering & Technology. Dr. Trent Montgomery, dean of engineering and technology at Alabama A&M, put together an advisory committee of seven members, with representatives from the university's three engineering departments, the Army and NASA, to decide what the best program for the engineering school would be.

"The advisory committee members considered the academic

needs of Alabama A&M's engineering school, but we also focused on the advanced education needs of the government and industry organizations in the Huntsville area," Lassiter said.

Lassiter, a participant of the NASA Administrator's Fellowship Program, was working on efforts to improve undergraduate engineering curriculum at Alabama A&M when he was asked to serve as Marshall's advisor on the committee. The fellowship program was created to enhance the professional development of NASA employees as well as the science, technology, engineering and mathematics, or STEM, faculty from minority institutions. It is part of Marshall's long tradition of partnering with scientists, engineers, scholars and researchers at key institutions in Alabama and throughout the nation to promote education and expand STEM disciplines.

After exploring different graduate programs, the committee decided on materiel engineering as its new field of study. Materiel engineering is interdisciplinary, as it involves the design, production, test and evaluation, distribution, operation and support and ultimate disposition of man-made equipment, apparatus and supplies.

The program will have a 30-hour course requirement, including establishment of new classes at the university. It also will give students a more hands-on approach to learning, rather than writing a thesis.

The School of Engineering and Technology is working diligently to add several of the courses for the graduate engineering program to its fall roster.

Lassiter hopes Marshall employees will take advantage of what the new program has to offer. "Both current and future NASA employees can benefit from the advanced education and experience they will acquire from this curriculum," Lassiter said.

"Participants can readily apply their education and experience to performing the many different tasks involved in developing not only the launch vehicles that are capable of taking us back to the moon, but also new programs that can further our exploration and discovery efforts."

Norris, an ASRI employee, supports the Office of Strategic Analysis and Communications.



John Lassiter, in the background, a structural dynamics test engineer in Marshall's Structural Dynamics Test Branch of the Test Laboratory, does a presentation on structural dynamic analysis and testing at Alabama A&M University. Lassiter was an integral part of the development of a new materiel engineering graduate program at the university.

Courtesy photo

This month in history ...

Almost 50 years ago in a message to congress, President Dwight D. Eisenhower proposed the establishment of a National Aeronautics and Space Agency, into which the National Advisory Committee for Aeronautics would be absorbed. The NACA was founded in 1915 to study the problems of aeronautics and other aviation aspects of flight. This group of aviation experts would officially join NASA on Oct. 1, 1958.



Continued from page 1

The Marshall Center is teamed with NASA's Langley Research Center in Hampton, Va., to develop the Launch Abort System. Langley manages the project, overseeing system integration and providing guidance to the prime contractor, Lockheed Martin.

"If an emergency occurs requiring abort, the Orion's abort motor immediately generates 500,000 pounds of thrust, and, like its predecessor, the Launch Abort System propels the crew module safely away from the launch vehicle," Gaddis said. "But Orion's Launch Abort System will be effective in an even wider range of scenarios than Apollo's Launch Escape System. Orion's system is designed to take the crew to safety during the entire ascent of 300,000 feet, as well as from the launch pad."

The Launch Abort System represents NASA's continuing commitment to enhance spaceflight safety, using today's technological advancements to build on the strengths of the Apollo heritage.

"We've looked to the past to build for the future," Gaddis said. "But we have much better tools now. Improvements in design tools and methods clearly reveal differences between past and present, but we can use the tools to capitalize on the knowledge and experience of some veteran engineers."

One voice the LAS team is listening to belongs to Milt Silveira, Apollo era deputy manager of the Aerodynamics Branch at Houston's Manned Space Center, now Johnson Space Center, who later became the chief engineer at NASA's Headquarters in Washington. Silveira came out of retirement to help with Orion's Launch Abort System. Silveira's expertise with launch escape systems extends all the way back to the Mercury program.

"We used slide rules and big main frame computers back then," Silveira said. "In fact, our initial analysis was done with analog computers. Things are moving a lot faster now with all the technological advancements, but we still do a lot of testing and analysis of the design. We do have a great deal of wind tunnel data from the Apollo era that we can use now. That is very helpful."

Roth agreed. "In the early 1960s, computers were still a dream, or the ones they had filled up whole rooms and did not have the computing power of a laptop today," he explained. "To do our calculations for designing the structure, we used electro/mechanical calculators. They were about the size of a breadbox and were very heavy. Today's pocket calculator can do what these did and more. The actual structural designs were done on large drawing boards by hand. Initial drawings were done in pencil and final drawings in ink. These drawings were then sent to the shops to manufacture the hardware pieces that were required."

Times and tools have changed.

"Now designs are made on a computer, and then the drawings are transferred directly to the manufacturer and the data is loaded into the machines that turn out the hardware," Gaddis said.

Although design methods and tools have changed drastically since the Apollo days, few differences exist between the designs of the

Apollo and Orion systems themselves. According to Gaddis, however, the Launch Abort System does incorporate some new elements that would make a crew's ride to safety smoother, less risky and more controlled.

The Launch Abort System consists of:

- an adapter cone that attaches the Launch Abort System structure to the crew module
- a motor stack consisting of three solid propellant motors to perform abort, active attitude control and jettison
- a canard section to passively reorient the Launch Abort System during abort to ensure the crew module is pointed correctly for parachute deployment and safe landing
- a nose cone

Enhancements to the Apollo system include the active control motor to widen the envelope for successful aborts and stabilize the flight prior to reorientation and the reverse flow nozzles for the abort motor, which allow the abort motor case to provide a standoff between the nozzles and the crew module such that a separate lattice-like launch escape tower is not required.

The LAS team now is preparing for the Pad Abort-1 test scheduled for late 2008 at the U.S. Army's White Sands Missile Range in New Mexico. The Attitude Control, Jettison and Abort Motor ground test units are now midway through production, and tests are scheduled to take place in the next several months.

As NASA moves toward the launch of the next generation of crew exploration vehicles, engineers and technicians here will continue to use knowledge from the past with tools of the present to realize hopes for the future.

Coulter, a Schafer Corporation employee, supports the Office of Strategic Analysis and Communications.



A few members of Marshall's Launch Abort System team review the current design. From left are Mack Ross, solid rocket boosters expert; Stephen Gaddis, deputy manager of the Launch Abort System; David Mobley, senior technical advisor and program integration; Jim Thomas, deputy lead of Production & Operations; and Sandy Forrester, deputy of Systems Engineering & Integration. Apollo-era engineers Ross, Mobley and Thomas are applying their collective years of experience and lessons learned in the past to help NASA meet the challenges of the future. The image in the foreground is of an Apollo Pad Abort Test at White Sands Missile Range on June 29, 1965.

MARS Soccer Club seeking players; season to begin March 24

MARS Soccer will begin March 24. Participation in the MARS Soccer Club is available to all NASA personnel and contractors. Pickup games will be held at 4:30 p.m. on March 13, 18 and 20 at the

Army soccer field on Patton Road. The registration fee will be \$10-15. For questions, contact Andy Heaton at 544-3839 or andrew.f.heaton@nasa.gov.

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, March 27, is 4:30 p.m. Thursday, March 20.

Miscellaneous

2002 Honda CR80 trail bike, riding gear, \$975. 683-4758
NordicTrack Classic Pro with computer monitor, \$90. 656-0043
Prom dresses, sizes 18-22, shoes, purses, shawls, \$50-\$200 per outfit. 640-6418
Garmin Nuvi 200 GPS, brand new in box, \$175. 931-636-2726
Two loveseats, one reclines, club chair, will sell separately, \$300 all. 883-1096
Three electric thermal control attic fans, \$175. 881-2027
Green Japanese trees, \$25 each. 345-7049
Huntsville Memory Garden, Garden of Devotion, six adult spaces, \$2,195 each, negotiable. 859-4002
Shih-Tzu puppies, wormed, first shots, three males, three females, \$350-\$400. 200-4018
Toshiba 34-inch HD-ready CRT TV, remote, owner's manual, \$200 obo. 880-1544
Large floral designer sofa, \$500. 536-5132
Large Challenge Traditions poster/picture, framed, \$25. 536-5132
Remington Model 700BDL 30-06, scope, \$625; Hawken 50-caliber Muzzleloader, \$225; RH compound bows, \$60-\$150. 931-425-0205
Contemporary dining room set, 72-inch glass table, six chairs, two China cabinets, \$500 obo. 603-1273

Motorized retractable awning, remote control, \$500; Sears car top carrier, lockable, \$75. 655-2548
Bowflex XLT, attachments, \$350. 503-7070
Kids' Step2 table, two chairs, talking vanity, accessories, \$20. 777-1810
Kasson Pool Table, Auburn model, fruitwood, Queen Anne feet, leather pockets, all accessories, \$1,950. 880-6563
Jardine cherry Berkley crib, \$100 obo. 651-8507
Bathroom fixtures, tub, lavatory, tempered-glass tub enclosure, \$100. 536-1787
Three German Dirndl, purchased in Germany, \$250 obo. 509-2536 or 379-3398
Dell Computer, 5600 CPU, 1Gb RAM, DVD-RW, GeForce 8300 graphics, warranty, \$410. 417-4828
35 mm automatic slide projector, \$30; wing-back chair, \$35. 852-6952

Vehicles

2007 Dodge Charger Super Bee, number 510 of 1000, 1,800 miles, \$38,500. 214-1836
2006 Suzuki Boulevard C50, loaded, \$5,000 firm. 683-1977
2004 F-150 Supercrew Lariat, 2WD, leather, heated seats, tow package, 48k miles, \$18,000 firm. 426-1822
2004 18-foot aluminum fishing boat, Yamaha motor, \$20,500. 820-3759 or 452-4125
2001 Mazda Miata, red, black top, auto, A/C, cruise, 71k miles, \$11,500. 881-0520
2000 Starcraft 21-foot travel trailer, bath, kitchen, TV, stereo, \$4,500. 461-9841
1999 Toyota 4-Runner Limited Edition, white, brown interior, sunroof, CD, A/C, \$7,000. 694-1260
1999 Lexus RX300 AWD, leather, heated seats, CD changer, sunroof/moonroof, 150k miles, \$8,300. 468-6261
1996 34-foot Rexhall Aerbus Class A wide-body motorhome, new tires, \$18,000. 325-2919
1996 Ford F-150 Super Cab, automatic, camper shell, power, dual gas tanks, \$4,650. 679-5476

1992 Camry LE, white, sunroof, power windows/locks, automatic, multi-disk player, 196k miles, \$2,000. 651-7991
1988 Oldsmobile 98 Regency, 135k miles, \$1,500. 658-3642
19-foot Bayliner Capri Bowrider, 125 hp, trailer, covers, extras, \$3,500. 653-3647
1979 Chevy pickup, \$1,000 obo; LT235 John Deere, 52-inch cut, \$1,300; kids' Jeep, \$50. 931-2447

Wanted

Child bike seat, fits 26-inch hybrid bike, must be in excellent condition. 288-0906
Single or double jogging stroller, good condition. 519-9326
Firm twin mattress. 655-6348
Intermediate-level tennis player wants to practice with similar players; time, location and days flexible. 417-9507
Self-propelled lawn mower in working condition. 683-7445

Found

Silver and gold ladies watch, Building 4200 area. 544-4680

Free

Large trampoline, netting support poles, no net. 479-9908
Black/white cat, male, fixed, litter box, feeding bowls, pet carrier. 541-2049

Shuttle Buddies to meet March 24

The Shuttle Buddies will meet at 9 a.m., Monday, March 24, at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

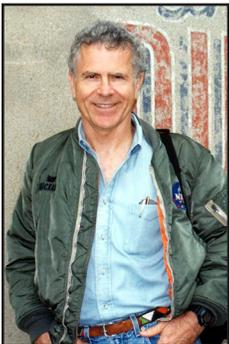
Marshall Association elects 2008 officers

The newly elected Marshall Association officers for 2008 are, from left, Debrah Underwood, vice president for programs; Herb Shivers, president; Angelia Walker, vice president for communications; and Bennie Jacks, treasurer. The Marshall Association was established 21 years ago to foster the exchange of innovative and stimulating ideas within the Marshall community. Originally founded as the Marshall Management Association, the organization has expanded its membership to include all members of the Marshall community, including non-supervisory employees, contractors and retirees. The self-governing organization sponsors several activities throughout the year, all of which are supported through the volunteer efforts of its dues-paying membership.



Emmett Given/MSFC

Homer Hickam to speak at Marshall Association luncheon



Homer Hickam

The Marshall Association will hold its next luncheon meeting at 11 a.m., April 1, in Activities Building 4316. In a program called "Homer Hickam talks about a little bit of everything," guest speaker Homer Hickam will share his insights. A former NASA aerospace engineer at Marshall, Hickam is the author of the bestseller "The Rocket Boys," which became the 1999 motion picture "October Sky."

The luncheon is \$11 for Marshall Association members and \$13 for non-members, payable at the door. Contact Bennie Jacks at bennie.a.jacks@nasa.gov or 544-7848 by March 28 to reserve seating.

For employees interested in joining the association, a \$25 membership fee can be paid at the door, or contact Jacks.

To read the advantages of becoming a Marshall Association member, go to http://inside.msfc.nasa.gov/er/marshall_association.html.

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