



MARSHALL STAR

Serving the Marshall Space Flight Center Community

Aug. 4, 2005



NASA

Docked to the Space Station, Discovery's payload bay appears empty. Its cargo carrier — the Multi-Purpose Logistics Module Raffaello, managed by the Space Systems Programs/Projects Office at Marshall — has been docked on the Station's Unity Node.

Spacewalker removes protrusions **Discovery flight extended to Aug. 8**

By Lynnette Madison from combined reports

The STS-114 crew completed heat shield repair efforts on Space Shuttle Discovery's underbelly quickly and as planned during Wednesday's spacewalk.

STS-114 Mission Specialist Steve Robison removed gap fillers that were protruding from two areas between heat-shielding tiles on Discovery. Robison gently tugged the protrusions until they came out. After he removed the second protrusion, Robison declared, "It looks like this big patient is cured."

Even though only one spacewalker was able to work on the underside of Discovery, the repair efforts required teamwork. Fellow spacewalker Mission Specialist Soichi Noguchi provided communications

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Aerocapture technology 'puts brakes' on spacecraft

By Sheri Bechtel

Marshall engineers are working to develop ways to place space vehicles into long-duration orbits around distant planets and other destinations across the Solar System without the need for heavy, on-board fuel loads.

Aerocapture is one technology being developed to achieve these goals and enable robust exploration missions to any planetary body with an appreciable atmosphere.

Aerocapture is a flight maneuver that inserts a spacecraft into its proper orbit about a planet or moon by utilizing a natural resource available at the destination

— the atmosphere. The dense atmosphere creates friction and is used as a brake to slow down a craft, transferring the energy associated with the vehicle's high speed into thermal energy. This allows for a quick, near-propellantless orbit capture.

For an Aerocapture maneuver to succeed, a thermal protection system is needed to shield the spacecraft from the high heat generated during an orbit capture in an atmosphere. NASA's Aerocapture Technology team recently completed tests of advanced thermal protection systems at the National Solar Thermal Test Facility at the Sandia



Marshall's Aerocapture team and industry partner conducted solar panel testing at the National Solar Thermal Test Facility in April 2005.

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Aerocapture

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National Labs in Albuquerque, N.M.

The tests were done at Sandia's solar tower, which includes 212 large mirrors to track the Sun and focus sunlight on a target, simulating the intense heat encountered during an aerocapture maneuver. Data from the tests will be used to determine the overall suitability of advanced thermal protection system, adhesives and structure combinations for a future rigid aeroshell system.

The aeroshell — a protective "shell" surrounding the spacecraft — and its thermal protection system, which shields the spacecraft from the high heat generated during orbit capture in an atmosphere, have similar characteristics to those developed for past Venus, Mars and Jupiter missions. Most recently, in January 2005, a rigid aeroshell system delivered the entry probe Huygens into the atmosphere of Saturn's largest moon, Titan.

In 2006, Marshall's In-Space Aerocapture team will integrate and test rigid aeroshell systems. Both ablative and non-ablative thermal protection system aeroshells will be built and tested. An ablative thermal protection system is one in which the top layer burns off or recedes at very high temperatures. These system-level tests will demonstrate the performance of new, lighter-weight aeroshells that could be used for future human and robotic missions.

Development of inflatable Aerocapture systems that would allow a more lightweight thermal protection system around the payload, and that could be applied to various size and shape payloads is

Discovery

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and visual support to Robinson and flight controllers. Mission Specialist Andy Thomas was the spacewalk coordinator. Pilot Jim Kelly and Mission Specialist Wendy Lawrence were the spacewalk's Station robot arm operators.

Before the arm removed Robinson from the underbelly area, he took pictures of the heat shield for analysis by engineers.

NASA has extended the Space Shuttle Discovery's flight by one day. The decision gives astronauts more time to transfer surplus supplies, including water, paper, pens and laptop computers, to the International Space Station, which partly relies on the Shuttle to keep it stocked.

Discovery's deorbit is now planned for 2:35 a.m. CDT Monday, Aug. 8, with the landing scheduled for 3:37 a.m. at Kennedy Space Center.

Last Saturday, Discovery astronauts Robinson and Noguchi used caulking guns and putty knives to test Space Shuttle-repair techniques. Noguchi and Robinson worked side-by-side in Discovery's cargo bay at a pallet of purposely damaged orbiter heat shield samples. The astronauts practiced the Emittance Wash Applicator (EWA) repair of tile samples and the Non-Oxide Adhesive eXperimental (NOAX) repair of Reinforced Carbon-Carbon samples.

Marshall engineers helped develop and refine the NOAX repair,

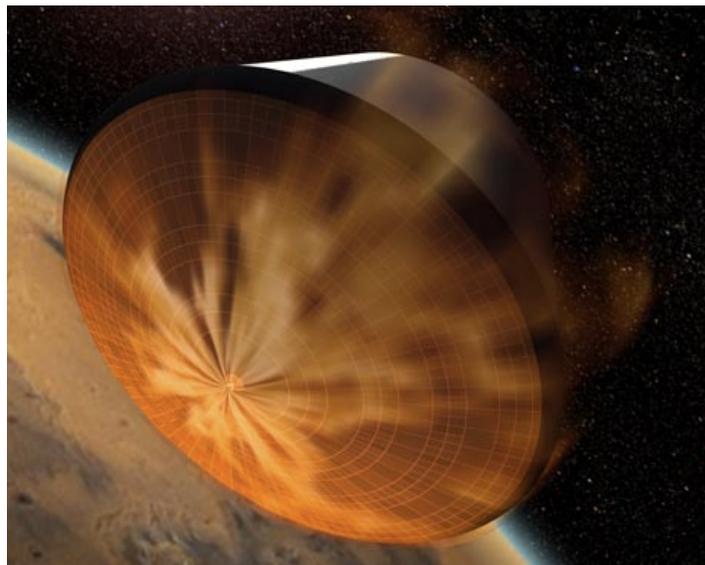


Illustration by NASA/MSFC

A concept image of Aerocapture technology in Mars orbit.

also under way.

Aerocapture technology is just one of several propulsion technologies being developed by NASA and its partners in industry and academia, led by Marshall's In-Space Propulsion Technology Office. Marshall implements the In-Space Propulsion Program on behalf of NASA's Science Mission Directorate in Washington.

For more information about Aerocapture research, visit: <http://www.inspacepropulsion.com>

The writer, an ASRI employee, supports the Public and Employee Communications Office.

known as the Reinforced Carbon-Carbon On Orbit Crack Repair technique.

Last Friday, Space Shuttle and Space Station crewmembers installed the Raffaello Multi-Purpose Logistics Module and began unloading the pressurized cargo carrier. Raffaello is the second of three cargo carriers to be put into service. The carrier fleet is managed by the Space Systems Programs/Projects Office at the Marshall Center.

Raffaello was unberthed from Discovery's cargo bay just before 1 a.m. Friday by the Station's Canadarm2 -- operated by Lawrence and Kelly -- and attached to the Station's Unity Node.

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Space Station crewmember Leroy Chiao to visit Marshall Friday

International Space Station Expedition 10 Commander Leroy Chiao will visit the Marshall Center Friday, Aug. 5. He will present mission highlights for Marshall employees from 10:45 a.m.-11:45 a.m. in Morris Auditorium. The presentation will include a multimedia program about his two spacewalks outside the orbiting laboratory and his 192 days on board the Space Station.

The world watched Return to Flight

By Jack Robertson

They came from 32 countries, 36 states and the District of Columbia. Hundreds of reporters, photographers, videographers, news producers and satellite truck operators descended on the Kennedy Space Center for Space Shuttle Discovery's Return to Flight, STS-114 mission.

At least 937 badges were issued to U.S. media and another 259 badges to foreign press for the first launch attempt on July 13. Most of them returned for the July 26 liftoff.

The Huntsville Times, Channel 19 and Channel 48 sent news teams to Kennedy Space Center to cover the launch, and especially Marshall Center's role in it.

Marshall Office of Strategic Communications staff members Martin Jensen, June Malone, Lynnette Madison and Dom Amatore were part of a team of media relations specialists from NASA Headquarters and field centers that provided answers to literally thousands of media questions.

"The level of interest in human space flight was amazing," said Jensen, who experienced just his second Space Shuttle launch as a NASA employee. "Not only were there so many media representatives there from the United States, but the vast diversity of media from around the world was impressive. It seemed like there was someone there from just about every continent."

Answering reporters' questions and providing information was challenging because of the huge numbers of media present at the Kennedy news center. For the first STS-114 launch attempt, Public Affairs set up 36 portable trailers to handle the crowd. Eight power generators augmented standard electricity at the site, providing an additional 1.75 million watts of power.

"It was hectic at times, but we did our best to answer every question," said Malone, a media relations veteran of many Space Shuttle missions. "We couldn't have done it without the folks in the Space Shuttle Propulsion Program Office, the Marshall Engineering Directorate and the Safety and Mission Assurance Directorate. They were available, very willing to engage reporters and tell the NASA story. They made it happen."

Marshall Center Director Dave King, Shuttle Propulsion Office manager Mike Rudolph, Safety and Mission Assurance director Jan Davis and other Center managers and experts gave interviews to

news media at Kennedy Space Center. Those interviewed included David Beaman, Robert Champion, John Chapman, Sandy Coleman, Mike Kynard, Neil Otte and Tom Williams.

TV crews set up 41 live satellite trucks and at least 47 broadcast positions on stages or scaffolding. There also were dozens of reporting areas on the lawn in front of the news center. At least 43 news organizations and 120 photographers set up 191 cameras for remote operation.

Days before the media arrived, Kennedy Space Center broadcast operations fabricated and ran more than three miles of video and audio cable. Technicians ran an additional one mile of cable to hook up high-definition systems equipment to the existing television infrastructure.

The Kennedy Space Center Public Affairs Office distributed more than 850 video tapes, 130 photographic compact discs and 89 audio tapes. On the first attempted launch day alone, NASA photographers shot 570 images and 33 photos were posted on the NASA Web site. The Web site received more than 219,000 page views that day. At the same time, NASA TV On Line recorded 86,000 simultaneous viewer streams, exceeding the 49,000 simultaneous streams for the Mars Rover landing and second only to 118,000 simultaneous viewers for the Deep Impact mission in early July.

The writer, an ASRI employee, supports the Public and Employee Communications Office.



NASA/KSC

Satellite trucks line up in the parking lot at the Kennedy Space Center news center to cover the initial launch attempt of Space Shuttle Discovery on Return to Flight mission STS-114.

New, improved Daily Planet is here!

By Sanda Martel

The **Daily Planet** — Marshall's single-page, large-format daily "newspaper" — is back on the "newsstand."

The revised **Daily Planet** has a new look and improved content, with the goal to be a better way to deliver daily news to the Marshall team. The new format features a color masthead with an image of planet Earth as seen from space. This new-look **Daily Planet** has gone through the NASA Communication Materials Review process and been approved for publication.

The 15-year-old publication, which premiered in August 1990 to speed the flow of NASA and Marshall Center information to all employees, augments information disseminated weekly through the Marshall Star.

Daily content includes the news of the day and status reports about Marshall Center programs and activities; events of interest to Marshall team members center-wide; what's on NASA TV; and news



from NASA Headquarters and other field centers.

The **Daily Planet** is a product of the Public and Employee Communications Office in the Office of Strategic Communications. Each day content for the 11-by-17-inch publication is written, formatted and delivered to Reproduction, where copies are made and delivered to the Mail Room. The **Planet** is posted at strategic locations in Marshall Center buildings 4200, 4201, 4202, 4203, 4250, 4249, 4353, 4712, 4711, 4705, 4708, 4612, 4619, 4610, 4732, 4471, 4481, 4666, 4570, 4674, 4583, 4561, 4487 and 4483.

The **Planet** also is posted daily online. The current issue is available at: <http://dailyplanet.msfc.nasa.gov/planet.pdf>
Back issues may be viewed at: <http://dailyplanet.msfc.nasa.gov>

Feedback on the **Daily Planet** and any other Marshall employee communications publication or process is welcome. Point of contact is June Malone, Marshall's employee communications manager.

The writer, an ASRI employee, supports the Public and Employee Communications Office.

Huntsville Bicentennial Parade to include Marshall entry

By Sanda Martel

Marshall employees are invited to participate in the city of Huntsville's 200th birthday celebration Saturday by walking in the Unity Day Parade with NASA's parade entry and enjoying a day of festivities downtown.

The parade begins at noon at 620 Clinton Ave., across from the U.S. Postal Service office, and will follow a route along Monroe, Greene, Williams and Church streets and end on Clinton Avenue. Those participating in the parade should arrive at 10:45 a.m. to line up and walk behind Marshall's parade entry — the Mobile Space Shuttle exhibit, a scaled-down version of the Shuttle that tours the country. The exhibit will be pulled by a vehicle displaying NASA murals.

Following the parade, a grand finale celebration will be held throughout downtown Huntsville and Big Spring International Park. Events include the

lighting of the "Unity Candle" on a birthday cake; musical entertainment; children's activities; dedication of the Bicentennial Park and Time Capsule; a concert performed by the Huntsville Symphony Orchestra and the Huntsville Community Chorus; and a fireworks display.

"It's important to show our pride for NASA and Huntsville," said Rosa Kilpatrick of the Government and Community Relations Office in the Office of Strategic Communications, and Marshall's representative on the city's Bicentennial Celebration committee.

Marshall's role in the Huntsville Bicentennial Celebration includes restoring the contents of a 1955 "time capsule" opened earlier this year; designing a 2005 "capsule" that will be dedicated on Saturday; coordinating the sale of NASA/Bicentennial T-shirts; and providing exhibits and displays at "bicentennial



NASA/MSFC

Marshall volunteers Jeffery Thurston and Frieda Lowery helped staff the NASA exhibit — the Mobile Space Shuttle in downtown Huntsville July 28.

birthday parties" held in each city council district. For details, visit www.huntsvillebicentennial.com.

The writer, an ASRI employee, supports the Public and Employee Communications Office.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue is 4:30 p.m. Thursday.

Miscellaneous

Circa 1970 Aria brand Mosrite-style "High Flyer" bass guitar, sunburst, 30-inch neck, w/case. \$500. 303-3702

Nordic Track Achiever ski machine, \$50. 830-5039

Two 2.5" Flowmaster mufflers, \$100. 256-572-1197

Whirlpool heavy-duty washer, 2 yrs. old, & older Kenmore dryer, \$350 for set. 256-298-2112

Icon Mil Spec motorcycle safety vest, orange, reflective, large, adjustable, ID holder, pockets, \$35.

931-632-1959

New baseball caps, various colors, \$2 each. 256-852-5446 after 5 p.m.

Two mountain bikes, \$35 each; chest of drawers, \$50; kitchen table & 4 chairs, \$75. 256-772-3311

Closet Maid wire shelving, four 42" sections w/mounting hardware, \$20. 885-2448

Large solid Oak dresser w/matching nightstand, 5' mirror, \$275. 468-3749

Nikon N80 w/vertical grip, \$250; lens, 24mm, 1.8D, \$225; lens, 50mm, 1.4D, \$200. 931-703-5956

Wilton cake pans: Bob the Builder, race car, bear, \$4 each or 3 for \$10. 503-5398

Violin, 1/4, \$130; Gerbil cage, accessories, \$8; new Canon IP3000 photo-printer, \$75. 811-4148 after 6 p.m.

Sand rail w/new engine, drive-on trailer & Mickey Thompson mudders, \$4,000. 653-6207

Tires and wheels, 14", \$250; miniature Schnauzer for stud, \$600; 12 vintage hats, \$400. 651-2944

Rattan wicker pedestal square rounded-corner glass top table w/4 chairs, blush, make offer. 772-7262

Luggage set, 4-pieces, Protocol, floral pattern, neutral colors, \$40. 520-3874

Tour Limited Edition shallow face woods, 1, 3, 4, set of 3, w/graphite shafts, all for \$75. 881-5642

Chest type freezer, 8.5 cu. ft., old but works, u-haul, \$20. 325-0085

Various Pampered Chef stoneware & kitchenware items, some never used, call for list and prices. 520-4839

Proform XP 542e treadmill, 2.75HP, 5 months old, extended warranty, \$475. 722-4741

Canon ElanIle 35mm camera, 18-80mm, 75-30mm USM zoom lenses, Sunpak PZ4000AF flash, \$430.

256-797-2668/Lamar

La-Z-Boy recliner, yellow-gold, \$55. 289-5651

Wedding gown with train and veil, size 6, \$100. 881-8674

1986 Service Manual for Honda Civic CRX/Si, \$10.

883-2948

Pilates Performer bench with stand, \$225. 828-9099

Kenmore Series 80 washer & dryer, \$243. 837-7732

Sofa, multicolor, solid Oak frame, \$200; Century booster seat, \$25. 353-0370 after 5 p.m.

Queen Anne living room tables, Cherry, two end tables & coffee table w/inlay design, \$200. 880-3737

Antique buffet, Queen Anne feet, Walnut finish, 38"Hx66"Wx24"D, \$800. 830-0254

Bassett dresser, "5th Avenue", Java finish, new, \$900. 256-883-8523

Stereo/radio, \$75; large chest, \$75; small chest, \$25; crystal dishes, \$5-\$10; small appliances, \$5-\$10. 534-0939

Portable DVR, Archos-AV420, video audio photo player/recorder, 29Gb-HD remote, \$405. 655-1986

Parrot cage, 36"x26"x64", 1" bar spacing, hardwood perch, stainless bowls, slide-out tray, \$225.

256-851-9416

Student drum kit, Pearl, snare drum, bells, stand, sticks/mallets and rolling bag, \$125. 971-9710

Pair of miniature donkeys as pets. 256-423-7126

GE electric range, white, approximately 2 yrs. old, \$175. 890-9098

Vehicles

1999 Chevy K3500, 4x4, CrewCab, leather, topper, lift kit, brush guard, winch, 73.5K miles, \$17,500. 683-9364

1995 Cadillac Concours Deville, leather, black, tinted windows, rims, \$4,250. 520-2802/Ron

1995 Chevrolet Silverado, ext. cab, all extras, white, 87K miles, Michelin tires, \$5,500. 1-256-773-5051

2000 Honda Civic, 4-door, PDL, remote entry, A/C, AT, AM/FM/CD, 94K miles, 32 mpg. 895-0577

1998 BMW 740iL, hunter green, tan leather, 106K miles, new tires. 682-0888

2001 F150 Lariat, red, 60K miles, \$15,000. 881-9753

1989 Ford Ranger pickup truck, 90K miles, good tires, 4-cylinder, \$1,300. 881-5897

2000 Ford F250 Super-duty Super-crew Lariat, 7.3 diesel, automatic, white, 4x4, 137K miles, \$21,000.

256-497-3518

2001 Kawasaki motorcycle, ZRX1200, 10K miles, 45mpg, \$4,500. 882-9407

2000 Corvette coupe, metallic magnetic red, 6-speed, 40K miles, \$25,000. 256-874-7773

2002 Ford Explorer XLT, leather, CD, etc., \$14,900.

881-6094

2000 Miata, white, black top, AM/FM/CD/cassette, air dam, 31K miles, \$9,980. 881-8130

1999 BMW 328iC convertible, white w/power top & leather, Premium/Sport & H&K, 87K miles, \$18,500. 683-9470

2000 Cavalier, 109K miles, \$3,500. 828-4055

1984 Dodge B250 camper, Special, 85K miles, \$2,000. 230-6819 after 5 p.m.

Wanted

To rent or lease ski boat for several months. 603-3698

Someone to help remove/replace sub-floor and install 3/4" wood flooring, estimates needed. 828-9099

Gas powered Moped or Scooter, running or not. 325-6000

Electric edger, hammock stand. 655-7972

Free

Zenith 19-inch color TV in working condition. 883-8257

Lost

Diamond necklace in Bldg. 4203 area, 10th anniversary gift, reward offered. 658-2021

Obituaries

George J. Porter, 81, of Huntsville, died July 20. He retired from the Marshall Center in 1979 as a patent attorney. He was also a Korean War veteran.

Survivors include his wife, Lucy Thompson Porter; his mother, Wyona Fry Porter; four sons, G. Jon Porter, James N. Porter, Thomas N. Porter and Robert B. Porter; two daughters, Virginia P. Eschenberg and Susan Flynn; a stepson, Robert F. Duncan Jr.; and two step-daughters, Lucy Duncan Scheman and Susan D. Kern.

Dr. Jason G. Porter, 51, of Huntsville, died July 23. He was the principal investigator for the Solar Ultraviolet Magnetograph Imager at the Marshall Center at the time of his death.

Survivors include his wife, Linda Porter; two sons, Graham

Porter and Allen Porter; and his parents, Garth and Nora Porter.

James Thomas Murphy, 85, of Huntsville, died July 23. He retired from the Marshall Center in 1982 as the Institutional & Program Support Director. He was also a World War II veteran.

He is survived by his wife, Mickey Riggins Murphy; three daughters, Margaret Anne Lozuk, Mary Frances Scalley and Leslie Delaney Ruhl; and a step-daughter, Carol Riggins Wright.

Marvis W. Sanders, 80, of Huntsville, died July 26. He retired from the Marshall Center in 1981 as AST, Technical Management. Survivors include his wife, Violet M. Sanders; a son, John Merritt Sanders; and a daughter, Emmalee Sanders.

An AED could save your life

By Sanda Martel

One of the 46 Automated External Defibrillators (AED) at the Marshall Center may one day save your life — or be used by you to save a co-worker's life.

An AED is a computerized medical device used to check a person's heart rhythm. It can recognize a rhythm that requires a shock and advise the rescuer when a shock is needed. The AED uses voice prompts, lights and text messages to advise the rescuer of the appropriate steps to take. If indicated, the AED administers an electric shock through the chest wall to the heart.

"AEDs are very accurate and easy to use," said Joyce Eagan of the Marshall Medical Center. With a few hours of training, anyone can learn to operate an AED safely, she said.

"We have AEDs placed at various locations, including security vehicles and the NASA aircraft. The majority, however, are located in buildings and are identified on the Emergency Evacuation Plan posted in each building," added Eagan.

AEDs are housed in a wall-hung box with an identifying sign above. When the door is opened to remove the AED, a local alarm sounds to signal people nearby of a potential emergency, Eagan said. The units are checked monthly and keys are maintained by a custodian.

"The No. 1 thing to remember is to dial 911 first," Eagan said. "Get professional help on the way. While you're waiting, you can use the AED as appropriate."

The Medical Center has received calls from employees concerned about their liability if they offer assistance and inadvertently make a mistake in treating the victim. Eagan said any lay person who uses an AED is protected under the Alabama Good Samaritan Law. A non-medically trained civil servant or contractor is not subject to personal liability for any result of that action, according to Eagan.

The following Marshall Center buildings have at least one AED: 4200, 4201, 4202, 4203, 4249, 4315, 4436, 4487, 4561, 4566, 4612, 4619, 4627, 4663, 4666, 4674, 4755, the National Space

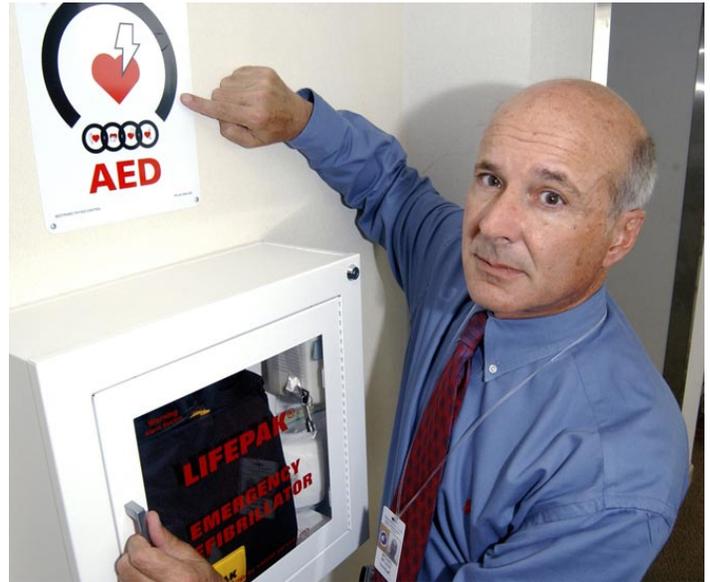


Photo by NASA/MSFC

Mike McLean, who works on the 8th floor of Bldg. 4200, has received training from the Medical Center on the operation of the Automated External Defibrillator. McLean points to a poster that identifies an AED location — one of 46 located at Marshall.

Science and Technology Center, and Intergraph buildings 600 and 800. Seven of the on-site AEDs belong to The Boeing Company, located in buildings 4610, 4705, 4708, 4711, 4754 and 4755.

Voluntary training is available to workers in areas where an AED is located. Contact Eagan at 544-3996 or by e-mail for additional information or to schedule training.

While the Medical Center does not have funding to purchase additional AEDs in the foreseeable future, any organization can purchase a unit for its area. The price of an AED varies by make and model, but generally costs \$1,500-\$2,000. Purchases must be coordinated with the Medical Center, Eagan said.

The writer, an ASRI employee, supports the Public and Employee Communications Office.

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