



# MARSHALL STAR

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July 17, 2008

## ET-127 arrives at Kennedy Center

### Tanks being produced now are 'best we've ever flown'

By Sanda Martel

External tank ET-127, which will fly with space shuttle Atlantis on the next shuttle mission, arrived at the Kennedy Space Center, Fla., on July 15. The tank shipped from NASA's Michoud Assembly Facility in New Orleans on July 10.

At Kennedy, ET-127 will be attached to Atlantis and prepared for a scheduled Oct. 8 launch to the Hubble Space Telescope on mission STS-125.

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External tank ET-127 arrived at the Kennedy Space Center July 15 from the Michoud Assembly Facility. It will be mated to space shuttle Atlantis for a scheduled Oct. 8 launch.



Lockheed Martin

## NASA sets launch dates for remaining shuttle missions

NASA news release

NASA has selected target launch dates for the remaining eight space shuttle missions on the current manifest in 2009 and 2010. The manifest includes the upcoming flight to the Hubble Space Telescope, seven assembly flights to the International Space Station and two station contingency flights, planned for completion before the end of fiscal year 2010.

The agency previously selected and announced launch dates for the two remaining space shuttle missions in 2008. Oct. 8 was announced as the launch date for Atlantis' STS-125 mission to service Hubble. Nov. 10 was selected for Endeavour's STS-126 mission to supply the space station and service both Solar Alpha Rotary Joints on the port and starboard end of its truss.

The latest announcement approves target dates in 2009 and 2010 and is subject to change based on shuttle processing and other launch vehicle schedules. The dates reflect the agency's commitment to complete assembly of the space station and to retire the space shuttle fleet as transition continues to the new launch vehicles, including Ares and Orion.

*See Dates on page 4*

## Space station crews to visit Marshall on July 22

International Space Station crew members of Expeditions 15, 16 and 17, including Expedition 16 Commander Peggy Whitson, will visit the Marshall Space Flight Center on July 22 to present highlights of their missions.

The event will be at 9:30 a.m. in Morris Auditorium, Building 4200. An autograph session will follow.

Whitson became the first female space station commander during her October 2007 to April 2008 mission. Also sharing

highlights of their missions will be Expedition 15 Flight Engineer Clayton Anderson, who stayed on the station for five months beginning in June 2007; Expedition 16 Flight Engineer Dan Tani, who was on the station from October 2007 to February 2008; and Garrett Reisman, who served as flight engineer with both Expeditions 16 and 17 from March to June of this year.

# David Hammond named 2008 Shuttle Propulsion Office Employee of the Year

By Sanda Martel

David Hammond has been chosen the Shuttle Propulsion Office's 2008 Employee of the Year, recognized for outstanding performance in the field of resource analysis and his willingness to share knowledge with other workers.

Hammond is a program integration manager with United Space Alliance, or USA, based in Houston, working in the Program Planning and Control Office of the Shuttle Propulsion Office at the Marshall Space Flight Center. His duties include assisting in the areas of management of resources; planning, reporting and analyzing financial and resource data; and development of reporting capabilities within the Integrated Enterprise Management Program, a NASA-wide effort to transform business systems and processes to improve fiscal and management accountability.

Hammond began his career with USA in 1999, after working for several other space shuttle contractors supporting the Space Shuttle Program. His entire 25-year career at the Marshall Center has been in support of the shuttle.

Hammond earned a bachelor's degree in technical management from Athens State University in 1991. In 2001, he was a Space Flight Awareness honoree, the highest recognition given to an employee by NASA's Space Flight Awareness Program. He received a NASA Appreciation Certificate in 2003 for his outstanding performance, dedication and business skills.

Hammond is a Decatur native, where he resides with his wife Cassandra. They are parents of three children — Ashley, Danielle and Davey. Hammond's parents, Arlice and Doris Hammond, also live in Decatur.



David Hammond

The Shuttle Propulsion Office began its Employee of the Year recognition program in 2004. Project managers each month submit names of employees who exhibit exceptional performance and dedication, and a monthly winner is chosen by management. Hammond was the recipient of the July 2007 Employee of the Month Award and was chosen Employee of the Year from among the 12 monthly honorees by vote of all employees in the Shuttle Propulsion Office.

*Martel, an ASRI employee, supports the Office of Strategic Analysis & Communications.*



## Moving toward NASA's 50th anniversary ...

NASA will mark its 50th anniversary this year on Oct. 1. One of the highlights in NASA's history occurred 37 years ago this month on July 26, 1971. On that date, NASA launched Apollo 15 carrying the first Lunar Roving Vehicle, which was developed by the Marshall Space Flight Center and Boeing. The rover, also used on two remaining flights to the lunar surface, permitted astronauts to greatly extend the range of surface explorations. For a brief history of the Lunar Roving Vehicle, go to <http://history.msfc.nasa.gov/lunar/LRV.pdf>.

## Obituaries

**Lawrence Lewis Reddick Jr.**, 86, of Huntsville died July 1. He retired from the Marshall Center in 1974 as an engineering technician.

**Jeff W. McKinley**, 86, of Huntsville died July 3. He retired from the Marshall Center in 1977 as an electronics technician.

# Tanks

## *Continued from page 1*

ET-127 will be the second space shuttle external tank to fly with new design changes to improve performance and flight safety. The first to incorporate those changes, ET-128, flew on the last shuttle mission, STS-124, launched May 31. It was the first tank to fly with all Return to Flight improvements incorporated during production. Those improvements had been added to previous tanks after manufacturing was completed.

NASA continues to improve the external tank, a process that began with the first Return to Flight Mission, STS-114, in July 2005. Those improvements include the numerous modifications that have been made to reduce the amount of foam used on the tank.

"The tanks we're producing now are the best we've ever flown," said John Chapman, manager of the External Tank Project Office at the Marshall Space Flight Center.

"Analysis of ET-128's performance recently has been completed and the final results are in: ET-128 set a new standard in outstanding tank performance," said Chapman.

The STS-124 flight performance review by the External Tank Project Office and its contractor teams began immediately following the May launch. The review was finalized in late June. Postflight analysis of ET-128 revealed no observed foam loss from either the liquid oxygen tank feedline brackets or the liquid hydrogen tank ice frost ramps, Chapman said. These redesigned elements flew for the first time on ET-128. The redesign of the foam in those two areas on ET-128 and all subsequent tanks dramatically reduces the potential of liberated foam during the first 135 seconds of launch — the most critical time for foam loss.

"I'm very proud of the NASA and contractor teams for their hard work and dedication that have brought us to this point in producing a safer space shuttle external tank," said Chapman.

Lockheed Martin Space Systems workers have built and assembled space shuttle external tanks at the Michoud facility for more than 30 years.

Chapman commended the Michoud team members for their continuing commitment to build quality tanks and deliver them on schedule, despite hardships they still face in the aftermath of hurricanes Katrina and Rita in 2005.

"These workers remain loyal and committed to building and delivering on time the 10 remaining space shuttle external tanks — even as NASA prepares for shuttle flyout in 2010," said Chapman. The agency is gearing up for the transition from shuttle to the Constellation Program, which is responsible for developing NASA's next generation of crew exploration and launch vehicles and related systems

and technologies for exploration of the moon, Mars and destinations beyond.

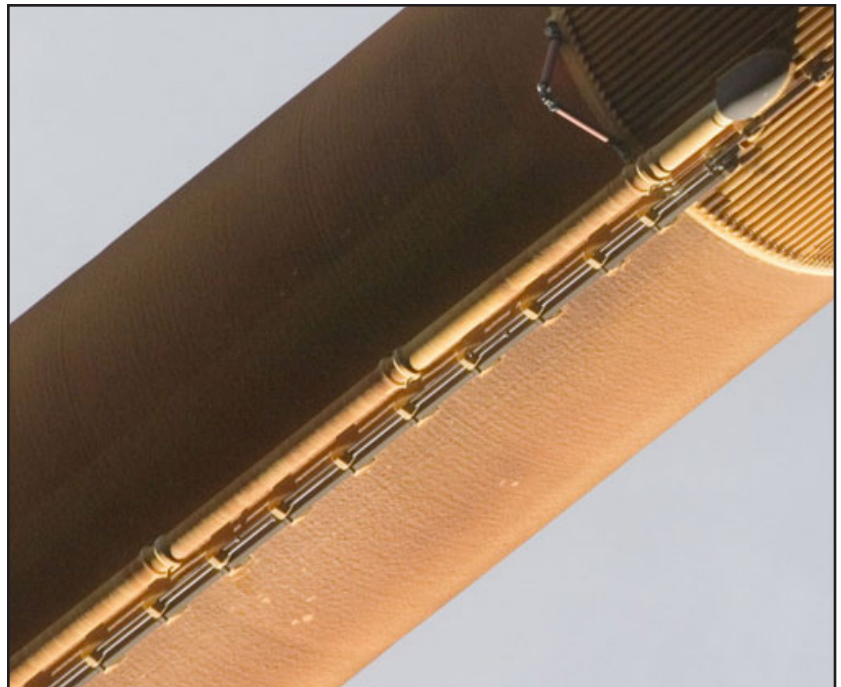
The next external tank to be completed, ET-129, is scheduled for delivery to NASA later this summer. It is set to fly on space shuttle Endeavour for the STS-126 mission to the International Space Station. STS-126 is scheduled for launch Nov. 10.

At 153.8 feet long and 27.6 feet in diameter, the external tank is the largest and, when loaded, the heaviest element of the space shuttle. This giant, rust-colored structure is the "gas tank" for the orbiter and contains the propellants used by the shuttle main engines. It consists of three major components: the liquid oxygen tank, an unpressurized intertank that contains most of the electrical components and the liquid hydrogen tank. The tank also is the "backbone" of the shuttle during launch, providing structural support for attachment with the solid rocket boosters and orbiter. It is the only component of the shuttle that is not reused. Approximately 8.5 minutes into the flight, with its propellant used, the tank is jettisoned and falls in a preplanned trajectory. Most of the tank disintegrates in the atmosphere, and the remainder falls into the ocean.

For more information about the Space Shuttle Program, visit [http://www.nasa.gov/mission\\_pages/shuttle/main/index.html](http://www.nasa.gov/mission_pages/shuttle/main/index.html).

For information about the next space shuttle mission to service the Hubble Space Telescope, visit [http://www.nasa.gov/mission\\_pages/shuttle/shuttlemissions/hst\\_sm4/index.html](http://www.nasa.gov/mission_pages/shuttle/shuttlemissions/hst_sm4/index.html).

*Martel, an ASRI employee, supports the Office of Strategic Analysis & Communications.*



NASA

**STS-124 astronauts aboard space shuttle Discovery photographed external tank ET-128's liquid oxygen feedline brackets and liquid hydrogen tank ice frost ramps after the tank separated from the orbiter following launch May 31. Postflight analysis revealed there was no foam loss.**

# Dates

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*Continued from page 1*

## Shuttle flights in 2009

On Feb. 12, Discovery will kick off the five flights scheduled for 2009 with the STS-119 mission. Discovery will deliver the final pair of U.S. solar arrays for installation on the starboard end of the space station's truss. The truss serves as the backbone support for external equipment and spare components, including the Mobile Base System. Lee Archambault will command the 14-day flight that will include four planned spacewalks. Joining him will be pilot Tony Antonelli and mission specialists John Phillips, Steve Swanson, Joseph Acaba, Richard Arnold and Japan Aerospace Exploration Agency astronaut Koichi Wakata. Wakata will replace Sandy Magnus on the station as a flight engineer. STS-119 marks the 36th mission for Discovery and the 28th shuttle flight to the station.

On May 15, 2009, space shuttle Endeavour, on its 23rd mission, will set sail on the STS-127 mission. Astronauts will deliver and install the Japanese Kibo Laboratory's Exposed Facility and Experiment Logistics Module Exposed Section, the final permanent components of the Japan Aerospace Exploration Agency's contribution to the station program. During the 15-day mission, Endeavour's crew will perform five spacewalks and deliver six new batteries for the P6 truss, a spare drive unit for the Mobile Transporter and a spare boom assembly for the Ku-band antenna. Mark Polansky will command Endeavour with Doug Hurley as pilot. Mission specialists will include Christopher Cassidy, Tom Marshburn, Dave Wolf, Tim Kopra and Canadian Space Agency astronaut Julie Payette. Kopra will become a space station flight engineer replacing Wakata, who will return home with the STS-127 crew.

Atlantis will launch July 30, 2009, on its 31st flight, for the 11-day STS-128 mission to deliver science and storage racks to the space station. In the payload bay will be a Multi-Purpose Logistics Module holding science and storage racks. Three spacewalks are planned to remove and replace a materials processing experiment outside the European Space Agency's Columbus module and return an empty ammonia tank assembly. The mission includes the rotation of astronaut Nicole Stott for Kopra, who will return to Earth with the shuttle crew. The remaining crew members have yet to be named. STS-128 marks the 30th shuttle flight dedicated to space station assembly and outfitting.

Launching on Oct. 15, 2009, Discovery's STS-129 mission will focus on staging spare components outside the space station. The 15-day flight includes at least three spacewalks. The payload bay will carry two large External Logistics Carriers holding two spare gyroscopes, two nitrogen tank assemblies, two pump modules, an ammonia tank assembly, a spare latching end effector for the station's robotic arm, a spare trailing umbilical system for the Mobile Transporter and a high-pressure gas tank. Canadian Space Agency astronaut Bob Thirsk will return home aboard Discovery with its crew, which has yet to be named. STS-129 marks the 37th

mission for Discovery and the 31st shuttle mission devoted to space station assembly.

Endeavour will close out 2009 on Dec. 10, with the launch of STS-130. It will be the 24th mission to the space station and will deliver the final connecting node, Node 3, and the Cupola, a robotic control station with six windows around its sides and another in the center that provides a 360-degree view around the station. At least three spacewalks are planned during the 11-day mission. The 32nd station assembly mission by a space shuttle does not yet have a crew named.

## Shuttle flights in 2010

Atlantis begins its 32nd mission Feb. 11, 2010, as the first flight of the year. STS-131 will carry a Multi-Purpose Logistics Module filled with science racks that will be transferred to laboratories of the station. The 11-day mission will include at least three spacewalks to attach a spare ammonia tank assembly outside the space station and return a European experiment that has been outside the Columbus module. It will be the 33rd shuttle mission to the space station. The crew has yet to be named.

On April 8, 2010, Discovery's 38th mission, STS-132, will carry an integrated cargo carrier to deliver maintenance and assembly hardware, including spare parts for space station systems. The second in a series of new pressurized components for Russia, a Mini Research Module, will be permanently attached to the bottom port of the Zarya module. The Russian module also will carry U.S. pressurized cargo. The first Russian Mini Research Module to go to the station is scheduled to launch on a Russian rocket in the summer of 2009.

At least three spacewalks are planned to stage spare components outside the space station, including six spare batteries, a boom assembly for the Ku-band antenna and spares for the Canadian Dextre robotic arm extension. A radiator, airlock and European robotic arm for the Russian Multi-purpose Laboratory Module also are payloads on the flight. The laboratory module is scheduled for launch on a Russian rocket in 2011. The mission marks the 34th mission to the space station. The STS-132 crew has yet to be named.

Endeavour's STS-133 mission, scheduled to launch May 31, 2010, will carry critical spare components that will be placed on the outside of the space station. Those will include two S-band communications antennas, a high-pressure gas tank, additional spare parts for Dextre and micrometeoroid debris shields. At least three spacewalks are planned by the crew, which has yet to be named. The 15-day mission will be the 35th to the space station and the 25th flight for Endeavour.

For the shuttle launch manifest, visit [http://www.nasa.gov/mission\\_pages/station/structure/iss\\_manifest.html](http://www.nasa.gov/mission_pages/station/structure/iss_manifest.html).

For details on upcoming shuttle missions and their crews, visit <http://www.nasa.gov/shuttle/>.

# 'Focus on Marshall': Students learn how to become rocket scientists; NASA prepares to launch Ares I-X

By Lori Meggs

See the rockets soar on the July episode of "Focus on Marshall." The monthly video program takes you to an annual event — sponsored by the Marshall Space Flight Center — in which college and high school students are challenged to design and build reusable rockets.

A NASA educational project, the Student Launch Initiative challenges college and university teams to design and build reusable rockets that can carry working science payloads one-mile high and return them safely to Earth. Their work culminates each spring in a day-long launch event that draws hundreds of spectators to the Tennessee Valley.

"Focus on Marshall" talked with participating students and

Marshall engineers who served as advisors to the students, and captured the flights of some of the rockets at the launch.

Another segment features the Marshall Center's work on NASA's newest rocket — the Ares I-X, a test flight for the Ares I rocket. Viewers will learn more about Ares I-X, including Marshall's role in its development, what NASA hopes to learn from the launch and the activities we will see on launch day next year.

"Focus on Marshall" is broadcast on Marshall TV and will air on July 17 at 11 a.m., noon and 1 p.m. It also is available on NASA TV, Inside Marshall and on the NASA Portal.

*Meggs, an ASRI 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, July 24, is 4:30 p.m. Thursday, July 17.*

### Miscellaneous

Sony WEGA 32-inch CRT, model KV-32FS100, stand, \$125. 468-2508  
La-Z-Boy reclining love seat, matching sofa, \$300 both. 230-3655  
Matching sofa, love seat, tan, light-colored pattern, \$600 obo. 777-7228  
KitchenAid side-by-side refrigerator, ice/water, 25.6 cubic feet, \$800. 289-5707  
HP F4280 printer/scanner/copier, new in box, \$50. 882-3326  
Denim crib set, comforter, bed skirt, bumper, curtains, \$100. 759-3009  
Antique walnut chifferobe, refinished, five drawers, three mirrored doors, \$200. 683-3398  
Maple Hill cemetery, unrestricted, one space, \$1,800. 552-0998  
Whirlpool Accubake Slide in stove/oven, black, smooth top, \$250. 883-6821  
Cargo liner for 1991-1995 Plymouth Grand Voyager, black, \$20. 882-0133  
Kenmore Series 90 washer, white, \$150; washer, dryer set, \$300. 345-9555  
Million Dollar Baby Luna crib mattress, in original packaging, \$75. 797-2115  
AKC German Shepherd puppies, five females, four males,

first shots, wormed, \$200 each. 423-2090  
1/2-carat round diamond engagement ring, 14-carat gold mounting, \$1,450. 233-7262  
Mirage speakers, two OM-7 towers, two Omnisat satellite speakers, stands, \$1,500. 679-2165  
Heritage Collection convertible crib, mattress, bumper pads, sheets, \$100; changing table, pad, cover, \$100. 656-2965  
Marshall Amplifier, 100 watts, solid state head, 410 cab, \$400. 431-5423  
XBOX 360 games, Rock Band, more, \$200; paintball gun, mask, CO2 tank, more, \$225. 654-4547  
Dog kennel, 10x10x6, \$200. 684-4883  
Camper shell for Dodge Dakota, \$50. 461-9894  
Double jogging stroller, zippered rain cover, \$100 firm. 895-6722  
Antique bedroom set, bed, drawers, vanity, <http://home.mchsi.com/~jscottm/furniture.htm>, \$400. 828-9651  
SBF GT 40-style aluminum cylinder heads, \$600; 2004 Yamaha 660 Raptor ATV, \$3,500 obo. 777-2667  
Gait Lacrosse youth helmet, shoulder pads, arm pads, gloves, \$100. 679-1910  
IMAGE 10.0 treadmill, \$150. 509-2536  
Trundle bed, mattress, maple headboard, \$35; queen brass headboard, bed frames, \$10 each. 489-0598  
Computer, monitor, keyboard, printer, speakers, \$250 firm. 533-2287  
4.3-cubic-foot compact refrigerator, \$75; .9-cubic-foot stainless steel microwave oven, \$40. 721-9101  
Two Bristol race tickets, Aug. 22, Food City 250, \$120. 682-6325  
American Drew dining chairs, six, solid cherry, Windsor arm, \$240. 883-7838  
200 amplifier meter base, 6-foot by 3-inch mast, weather head, \$25. 837-0958  
ProFit I-form treadmill, \$350 obo. 843-513-7939  
Samsung Syncmaster 710N 17-inch LCD monitor, \$100; Syncmaster 941BW 1440x900 19-inch LCD monitor, \$125. 656-6464  
Infant carrier, two bases, aquarium bouncer, infant activity centers, baby papasan swing. 880-3737  
Bowflex Xtreme Home Gym, 210 pounds, 65 exercises, \$550 obo. 457-5173

### Vehicles

2007 Tahoe 4x4 LT, silver, 21k miles, \$32,500; 1997 Camaro Z28, black, 158k miles, \$5,200. 565-9918

2005 Jeep Wrangler Rocky Mountain Edition, pictures available, 27k miles, \$18,500. 698-2692  
2005 Lincoln LS, light green, leather, AC, sunroof, wood grain, 68k miles, \$17,000 obo. 325-4446  
2003 Jeep Cherokee Laredo, 2WD, leather, cruise, CD, 59,600 miles, \$9,500. 655-6701  
2001 Honda CRV LX, black/gray, new timing belt/battery, 103k miles, \$8,000. 883-6894 or 468-6894  
1999 Toyota 4-Runner Limited Edition, white, brown interior, sunroof, CD, A/C, \$7,000. 694-1260  
1999 Dodge full-size truck, extended cab, 115k miles, \$8,000. 527-5244  
1999 Toyota Solara, new tires/brakes, 107k miles, \$6,500. 931-308-1723  
1999 Mazda Protege DX, four door, manual, AC, 121,223 miles, \$2,000. 881-0221  
1983 F-100 Ford truck, three speed, new clutch/pressure plate, \$900. 489-1579  
Toyota Camry LE, four door, four cylinder, 165k miles, \$3,700 obo. 682-8498

### Wanted

Used golf cart. 259-4467  
Telescope, mount, 5-inch aperture or larger, good condition only. 776-7399  
Houses/offices to clean; elderly or children sitting. 651-4723  
Ladies' regular bicycle, three speed, reasonable. 468-5375

## Shuttle Buddies to meet July 28

The Shuttle Buddies will meet at 8:30 a.m. July 28 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

# MARS Running Club takes top spots in Cotton Row Run Corporate Cup Challenge



Doug Staffer/MSFC

Marshall Space Flight Center's MARS Running Club members recently placed first, second and third in three divisions of the Corporate Cup Challenge in the 29th annual Mercedes-Benz Cotton Row Run in downtown Huntsville. This is the fifth year MARS has entered teams in the race's corporate challenge. The club won first in the Female Division, first and second in the Male Division and third in the Co-ed Division. Running club Marshall team members, from front left, are Angela Marsh, Engineering Directorate; Amanda Pettus, JTI; Joey Pirani, Engineering Directorate; Karen Knight, JTI; and Ryan Decker, Engineering Directorate. From back

left are Andy Hodges, VISTA; Andy Hodge, Joey Butler and Tom Smith, all of the Engineering Directorate; Christy Gattis, Ares Projects; and Cynthia Vemmer, Office of the Chief Financial Officer. For more information on the MARS Running Club, contact Sam Ortega at [sam.ortega@nasa.gov](mailto:sam.ortega@nasa.gov), or go to <http://exchange.msfc.nasa.gov/clubs.html#running>. Not pictured are Sara Masterson, Meg Stroud, Andy Brown, Andy Hissam, Charlie Finnegan and Jose Matienzo, all of the Engineering Directorate; Andrew Keys, Science & Mission Systems Office; and James Burnum, Ares Projects.

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