



# LAGNIAPPE

John C. Stennis Space Center

Volume 6 Issue 6

[www.nasa.gov/centers/stennis](http://www.nasa.gov/centers/stennis)

June 2011

## J-2X engine ready for testing

The J-2X engine, the new rocket engine that could power the upper stage of NASA's future heavy lift launch vehicle, is fully assembled and installed in the A-2 Test Stand at NASA's Stennis Space Center, ready for its first round of testing.

The engine is scheduled to undergo a series of 10 test firings beginning in mid-June and lasting several months. Collected data will verify the engine functions as designed.

"An upper stage engine is essential to making space exploration outside low-Earth orbit a reality," said Mike Kynard, manager of the J-2X upper stage engine project at NASA's Marshall Space Flight Center in

**See J-2X ENGINE, page 3**



A J-2X rocket engine is lifted onto the A-2 Test Stand at Stennis Space Center. Testing of the next-generation engine is scheduled to begin later this month.

## Endeavour completes final mission

In a sense, space shuttle Endeavour arrived on the scene in 1991 with something to prove. It is the youngest craft of the fleet, built to replace the lost Challenger orbiter and largely with leftover parts from the construction of shuttles Discovery and Atlantis.

It quickly came of age and completed its 25th – and final – flight to space with an impressive record of "firsts" to its credit.

Following its initial launch May 7, 1992, Endeavour grabbed headlines

**See ENDEAVOUR, page 4**



Space shuttle Endeavour touches down at Kennedy Space Center early on the morning of June 1, completing its 25th – and final – flight into space. It now joins shuttle Discovery in retirement.

From the desk of  
**Amy Grose**  
 Chief Counsel  
 Office of Chief Counsel  
 Stennis space Center



**W**hy does NASA need lawyers? This is a question we often hear in conjunction with, “What does a member of the Office of Chief Counsel do for Stennis Space Center?”

We readily explain that we operate like in-house corporate counsel to provide that same full range of services that counsel for Harley Davidson does, service that entails the provision of legal and business support for the space center, relating to NASA’s applied science and testing mission, as well as Stennis’ role as federal city landlord.

Like all NASA field center legal offices, we spend much of our time on Reimbursable Space Act Agreements and contracts; and, unlike most others, we also spend a great deal of time on land use issues. Often, listeners summarize this brief explanation by asking if we tire of being surrounded by problems.

I used to be taken aback by the question. While it is true that we are generally dealing with disputes and controversies of one sort or another, you will normally observe a happily engaged and upbeat group if you venture into our suite. Why? It is not because our law

degrees mean that we are only content when embroiled in some battle over the meaning of “shall!”

Rather, it is because we each recognize that we are doing interesting and meaningful work in support of mission objectives that engage us individually and as an office. Too, we enjoy the pace and variety of work that Stennis Space Center offers. There is no rut to get stuck in! We handle whatever walks through the door (or the gate)!

Another big reason we like our work is because Stennis Space Center has something no one else has – the Stennis buffer zone. Though many people and organizations are involved in the management of the buffer zone, the Office of Chief Counsel takes great interest in this acreage and, specifically, in NASA’s restrictive easement.

Like small but scrappy guard dogs, we watch the perimeter, trying to identify threats or potential incursions into NASA’s restrictive easement. This easement protects what has been termed a national treasure and what is certainly a unique national asset, an acoustical buffer zone so immense that it allows testing of large engines and whole rocket stages.

To us in the Office of Chief Counsel, this unique work is a constant reminder and perfect example of why NASA needs lawyers, and we feel very lucky that we get to fulfill that role.



## Mississippi mayors tour INFINITY site

Ocean Springs Mayor Connie Moran (right) and Gulfport Mayor George Schloegel joined other members of the Gulf Coast Business Council on a tour of the INFINITY at NASA Stennis Space Center site May 24. The INFINITY tour was scheduled as part of the business council’s monthly meeting, which was held in May at Stennis Space Center. The INFINITY science and education center is under construction just west of the Mississippi Welcome Center at Exit 2 on Interstate 10. When completed, the 72,000-square-foot center will feature science and Earth galleries to showcase the science that underpins missions of the resident agencies at Stennis. Construction of the facility is being spearheaded by INFINITY Science Center Inc., a nonprofit corporation led by Schloegel and Apollo 13 astronaut Fred Haise, in partnership with NASA, the state of Mississippi and private donors.



## FULFILLING NASA'S EXPLORATION MISSION

### J-2X ENGINE

Continued from page 1

Huntsville, Ala. "The J-2X goes beyond the limits of its historic predecessor and achieves higher thrust, performance, and reliability than the J-2."

The test stand transition work from the space shuttle main engine project to the J-2X test project included structural, electrical and plumbing modifications to accommodate the different geometry of the J-2X engine, and included installation of a new J-2X engine start system. Control systems were upgraded on the stand as well.

Fueled by liquid hydrogen and liquid oxygen, the J-2X engine will generate 294,000 pounds of thrust in its primary operating mode to propel a spacecraft into low-Earth orbit. By changing the mixture ratio of liquid oxygen to liquid hydrogen, the J-2X can operate in a secondary mode of 242,000 pounds of thrust required to power a spacecraft from low-Earth orbit to the moon, an asteroid, or other celestial destination. The J-2X engine can start and restart in space.

"We are excited to have a new engine in the A-2 Test Stand. Installation of the J-2X engine marks the beginning of the third major rocket engine test project on this historic stand," said Gary Benton, manager of the J-2X engine testing project at Stennis. "The A-2 Test Stand originally was used to test Saturn V rocket stages for NASA's Apollo Program. In the mid-1970s, the stand was modified from Apollo Program parameters to allow testing of space shuttle main engines. The test stand was once again modified to prepare for J-2X engine testing."

The J-2X was designed and built by Pratt & Whitney Rocketdyne of Canoga Park, Calif., for NASA.



### LOX tank installed on A-3 Test Stand

Construction of the A-3 Test Stand at Stennis Space Center continued June 8 with installation of a 35,000-gallon liquid oxygen tank atop the steel structure. The stand is being built to test next-generation rocket engines that will carry humans into deep space once more. The LOX tank and a liquid hydrogen tank to be installed atop the stand later will provide propellants for testing the engines. The A-3 Test Stand is scheduled for completion and activation in 2013.

### Atlantis set for final shuttle flight

Dawn approaches June 1, shortly after space shuttle Atlantis arrived at Launch Pad 39A at Kennedy Space Center in Florida in preparation for its final flight to space. The STS-135 mission by Atlantis also will be the final mission for NASA's 30-year-old Space Shuttle Program. Atlantis is targeted for a July 8 launch. The mission will be the orbiter's 33rd trip to space and the 37th shuttle flight to the International Space Station. The four-member Atlantis crew will carry the Raffaello multipurpose logistics module to deliver supplies and spare parts to the space station. The mission also will fly a system to investigate the potential for robotically refueling existing spacecraft and will return a failed ammonia pump module to help NASA better understand and improve pump designs.



## ENDEAVOUR

Continued from page 1

on its fifth mission – STS-61 in 1993 – when its crew completed a complex repair of the Hubble Space Telescope. As more than one observer commented, the repairs essentially saved the telescope from being little more than orbiting space junk.

In 1998, Endeavour initiated construction of the International Space Station, delivering the first American component and joining it with a Russian module already in orbit.

In an encore performance 10 years later, Endeavour delivered the first element of the Japanese Kibo module to the space station. All in all, it made 12 trips to the space station to deliver a host of parts and components.

In addition, Endeavour was the first orbiter to use a drag parachute during landing. It flew the first African-American woman, Mae Jemison, into space, as well as the first Japanese astronaut, Mamoru Mohri. It also carried the first married couple to fly on the same space mission, Mark Lee and Jan Davis.

Not to rest on its laurels, on its final mission, Endeavour delivered the Alpha Magnetic Spectrometer to the space station, which will enable scientists to search for evidence of dark matter and better understand the origin of the universe.

With its return to Earth early on June 1 from that mission, Endeavour became the second shuttle to be retired, joining Discovery, which completed its final mission March 9.

During 25 missions, Endeavour spent 299 days in space, orbited Earth 4,671 times, carried 173 crew members into space and traveled a total of 122,883,151 miles.

The numbers, and the missions they signify, add up to a clear conclusion – whatever Endeavour had to prove, it most assuredly did.

## Stennis hosts Open House to celebrate 50th anniversary



(Top photo) Astronaut Scott Altman talks with guests during a 50th Anniversary Open House activity at Stennis Space Center on June 2. Stennis hosted the public open house as part of a yearlong celebration of its 50th anniversary. The celebration culminates Oct. 25, the anniversary of the day in 1961 that NASA publicly announced plans to build the south Mississippi facility. The June 2 open house attracted more than 1,000 visitors.

(Middle photo) Stennis Education Office Director Katie Wallace (left) assists a young visitor at an activity table during the 50th Anniversary Open House sponsored by Stennis Space Center on June 2.

(Bottom photo) Stennis Director Patrick Scheuermann and Deputy Director Rick Gilbrech welcome visitors to the 50th Anniversary Open House celebration.





# NASA presents flight safety awards



Employees of Stennis Space Center, Dryden Flight Research Center, Ames Research Center, and the Defense Contract Management Agency were honored June 1 by NASA's Space Flight Awareness program for contributions to flight safety. Awards were presented by astronauts Serena Aunon and Mike Good in conjunction with the rollout of shuttle Atlantis at Kennedy Space Center for launch on the STS-135 mission. Pictured are (l to r): Aunon, Christel McDonald (Stennis, NASA), Tessa

Keating (Stennis, NASA), Jeanetta Dunhurst (Stennis, A<sup>2</sup>Research), Michael Iverson (DCMA), Casey Kirchner (Stennis, NASA), Sidney Jackson (Stennis, Pratt & Whitney Rocketdyne), Paul Espinosa (Ames, NASA), Sam Clay (Stennis, Lockheed Martin Test Operations Contract Group), Steven Wildes (Dryden, NASA) and Good. Scott Hariel (Stennis, Jacobs Technology Facility Operating Services Contract Group) received an award but was unable to attend the ceremony.



## Stennis hosts Old Timers' Day

Former Stennis employees enjoy a return to the test facility for Old Timers' Day on May 20. About 175 former employees attended the annual event. "It's wonderful to see people again you used to see every day," retired employee Judy Mitchell said. Donations to fund the event were provided by Jacobs Technology, Keesler Federal Credit Union, NASA Exchange and Pratt & Whitney Rocketdyne. Door prizes were donated by Hollywood Casino, Silver Slipper Casino, IP Casino, Isle of Capri Casino, Beau Rivage Casino, Paul's Pastry, Olive Garden Restaurant, Hancock Bank, Keesler Federal Credit Union, Navy Exchange and Rickey's Restaurant.



## NASA sponsors technology expo

Phillip Stallcup with Agilent Technologies in Huntsville, Ala., talks with NASA employees Leslie Ladner (l) and Kelly Sullivan about spectrum analyzers and other test equipment during the Stennis Technology Expo on May 26. The expo was hosted by NASA Solutions for Enterprise-Wide Procurement and featured various exhibitors demonstrating the latest in a range of technologies, such as training equipment, secure data storage, video networks, distance learning and data management.

# Stennis exceeds key small business goals

Stennis Space Center has received an achievement trophy for exceeding its procurement goals in all five key small business prime socioeconomic categories during fiscal year 2010.

For the first time, the south Mississippi facility also met the federal goal for awarding at least 3 percent of contracts and subcontracts to service-disabled, veteran-owned small businesses.

Stennis was one of only four NASA centers to earn a goal achievement trophy in 2010. It marks the second time Stennis has met all five of its prime socioeconomic goals. The facility also achieved that mark in 2004.

Each year, federal agencies work to achieve contract goals with small businesses, disadvantaged businesses, women-owned businesses, HUBZone small businesses and service-disabled, veteran-owned small businesses.

# NASA teams with Mississippi on technology



*Note: For 50 years, NASA's John C. Stennis Space Center has played a pivotal role in the success of the nation's space program. This month, Lagniappe looks back on an important moment in the south Mississippi rocket engine test center's history.*

**T**wenty-four years ago, NASA and the state of Mississippi entered a long-term partnership that eased the transfer of technology between the public and private sectors. On June 11, 1987, the Mississippi Technology Transfer Center was created as an opportunity for Mississippi businesses to share in government-developed technology in a previously unavailable way.

Then-National Space Technology Laboratories Deputy Director Roy Estess said the transfer of technology to the private sector was a responsibility charged by Congress. "We are spending government dollars to develop technology," he said. "Therefore, it is our responsibility to make it available to industry so everyone can benefit from it."

Then-Mississippi Gov. Bill Allain signed official documents transferring ownership of the building from the state of Mississippi to NASA. The federal government assumed maintenance of the building at no cost to the state, and the state took occupancy of a portion of the facility.

Seven years later, the Mississippi Enterprise for Technology was formed, renewing the partnership between NASA and the state. Its purpose was to help businesses increase productivity, improve existing products and services, develop new products, find needed markets and realize greater competitiveness, which it still does today.

## Area students name Stennis mascot 'Orbie'

**T**he inflatable astronaut mascot at NASA's John C. Stennis Space Center finally has a name – thanks to students in teacher Sarah Ladner's third-grade class at South Hancock Elementary School in Bay St. Louis. The students submitted the winning name, Orbie.

The name was selected as part of a contest earlier this spring that involved students in some 20 schools in Louisiana and Mississippi. Stennis Director Patrick Scheuermann visited South Hancock Elementary School on May 19 to announce the name, to thank the students for their winning submission and to present a large, full-color photo of Orbie to Ladner and her class.

Orbie can often be seen at various Stennis functions and events. Stay connected with Orbie on Facebook (Orbie the Astronaut page) and Twitter (@OrbieAstronaut).



The Mississippi Technology Transfer Center at Stennis Space Center

Other June historical events and milestones during Stennis' 50-year history include:

### 37 years ago

June 14, 1974 – Mississippi Test Facility renamed National Space Technology Laboratories (NSTL).

### 36 years ago

June 12, 1975 – First space shuttle main engine tested at NSTL to achieve ignition.

### 36 years ago

June 24, 1975 – First space shuttle main engine tested at NSTL to go full duration without an early shutdown.

### Four years ago

June 13, 2007 – Tree clearing begins for the site of the new A-3 Test Stand at Stennis Space Center.

### Two years ago

June 2, 2009 – Ribbon-cutting ceremony officially opens the new Emergency Operations Center.



Students at South Hancock Elementary School in Bay St. Louis gather around Orbie the Astronaut on May 19 as teacher Sarah Ladner affixes a nameplate to the Stennis Space Center mascot.



## Office of Diversity and Equal Opportunity

# Executive order prohibits discrimination

**H**ow does education relate to Executive Order 13160, “Nondiscrimination on the Basis of Race, Sex, Color, National Origin, Disability, Religion, Age, Sexual Orientation, and Status as a Parent in Federally Conducted Education and Training Programs?” The purpose of the order is to ensure equal opportunity in all federally conducted education and training programs. These include long-term, formal academic institutions sponsored by the government, as well as short-term training programs. This may include the NASA Administrator’s Fellowship Program and the NASA Headquarters summer internship program.

Prohibited discrimination may take many different forms including, but not limited to:

- Selecting or failing to select an individual to participate in a federally conducted education or training program because of his or her protected status.
- Denying an individual any aid, benefit, or service offered because of his or her protected status.
- Assigning an individual to a particular education or training program or activity, or a particular project, because of his or her protected status.
- Sexual harassment.
- Failure to take reasonable steps to ensure meaningful program participation for individuals who have limited English proficiency.
- Failure to provide reasonable accommodation for an individual’s religious beliefs.

As a practical matter, the application to a federal employee will depend on whether their participation in the education program at issue is employment-related or not. If participation is employment-related, then the employee will be covered by existing law, as well as the executive order. If the program is not employment-related, then the employee will be covered under the executive order only.

Within NASA, the Office of Diversity and Equal Opportunity (ODEO) is charged with enforcing civil rights statutes, regulations and executive orders to protect the rights of NASA employees and beneficiaries of programs or activities assisted or conducted by NASA.

Any person who believes he or she is aggrieved by a violation of Executive Order 13160 or its implementing rules may file a written complaint with the office. A complaint must be filed within 180 days of the alleged discrimination, unless an extension is granted by ODEO.

When filing a complaint, please include name, address, and signature. A contact number is helpful as well. Provide basic information about the incident, such as whether the alleged discriminatory act occurred in a federally conducted education or training program and whether it was related to federal employment. Include the name and location of the NASA installation involved, a description of the alleged discriminatory act(s) and the basis for the alleged discrimination.

For additional information concerning rights and responsibilities under Executive Order 13160, please visit the ODEO website at: [www.nasa.gov/centers/stennis/about/organization/odeo/index.html](http://www.nasa.gov/centers/stennis/about/organization/odeo/index.html), or contact Brian Hey at 228-688-1249.

## Hail & Farewell

### NASA bids farewell to the following:

<b>Cecil Lizana</b>	Human Resources Specialist Office of Human Capital
<b>Kern Witcher</b>	AST, Technology Management Project Directorate



## Holocaust Days of Remembrance

Av Szyller of Covington, La., recounts his experiences as a Jew living in occupied France in the early 1940s during a Holocaust Days of Remembrance gathering at Stennis Space Center on May 12. Szyller was arrested by Nazi soldiers but managed to escape France after several close calls. However, he lost his father and other family members in Auschwitz. Szyller, 83, returned to Europe in 1945 as a sergeant in the U.S. Army. After the war, he located to Louisiana, where he practices clinical psychology. This year’s Holocaust Days of Remembrance theme was “Justice and Accountability in the Face of Genocide: What Have We Learned?”

# LAGNIAPPE

is published monthly by the  
Office of External Affairs - Public Affairs  
at NASA's John C. Stennis Space Center

NASA PUBLIC AFFAIRS OFFICE  
Attn: LAGNIAPPE  
Mail code IA10  
Building 1100, Room 304  
Stennis Space Center, MS 39529  
or call 228-688-3749



Managing Editor  
Rebecca Strecker

Editor  
Lacy Thompson



National Aeronautics and  
Space Administration

John C. Stennis Space Center  
Stennis Space Center, MS 39529

Official Business  
Penalty for Private Use \$300

PRESORTED STANDARD  
U.S. POSTAGE  
**PAID**  
GULFPORT, MS  
PERMIT NO. 268

## Stennis welcomes summer students, interns



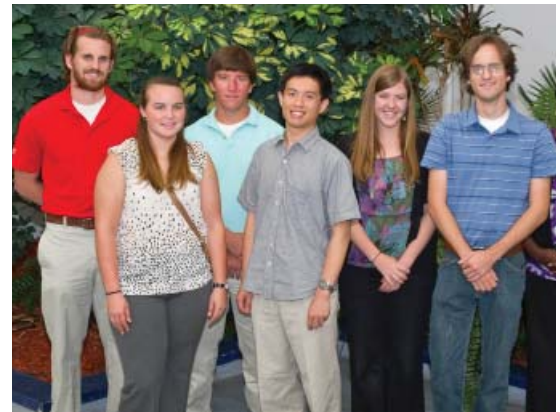
(Top left photo) Joy Smith (right), Stennis Space Center Education Office student program manager, and Nancy Bordelon (left), Jacobs Facility Operating Services Contract Group education programs coordinator at Stennis, stand with Thomas Conerly from Mississippi Gulf Coast Community College. Conerly will spend the summer at Stennis as a 2011 Mississippi Space Grant faculty fellow.



(Top middle photo) NASA DEVELOP Student Program Manager Cherie Miller (right) stands with students and leaders in the summer DEVELOP Program at Stennis Space Center. They are (l to r): Candis Mallett (University of Southern Mississippi), Jason Jones (DEVELOP assistant center lead), Shelby Barrett (William Carey University), Aaron Albin (Southeastern Louisiana University), Renane Burbank (University of West Florida), Ross Reahard (University of New Orleans), Brandie Mitchell (DEVELOP center lead) and Logan Schultz (Gulfport, Miss., High School).



(Top right photo) Ryan Hildebrandt (Louisiana State University) recently began his session as a summer Louisiana Space Grant intern at Stennis Space Center.



(Right center photo) Six students will spend the summer at Stennis Space Center as 2011 NASA Undergraduate Student Research Program (USRP) interns. They are (l to r): James Fontenot (University of Louisiana at Lafayette), Karissa Claybrook (Southeastern Louisiana University), Russell Canady (Mississippi State University), Harvest Zhang (Princeton University), Kristin Sharp (Mississippi State University) and Jason Warren (Mississippi State University).

(Right bottom photo) Five students recently arrived at Stennis as summer interns in the 2011 NASA Interdisciplinary National Science Project Incorporating Research and Education Experience (INSPIRE) Program. They are (l to r): Monique Davis (Lutcher, La., High School), Alexander Garza (SOAR High School and Antelope Valley College in Lancaster, Calif.), Maria Arguelles (Archbishop Edward A. McCarthy High School in Southwest Ranches, Fla.), Keheira Henderson (Martin Luther King Magnet High School in Nashville, Tenn.) and Bo Gan (Ottawa Hills High School in Toledo, Ohio). They are joined by Marilyn McIntosh, an INSPIRE chaperone from Oklahoma State University.

