



LAGNIAPPE

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STS-116 home for holidays

Commander Mark Polansky and the STS-116 crew were back home for the holidays. They arrived at NASA's Johnson Space Center in Texas on Dec. 23, a day after landing at NASA's Kennedy Space Center in Florida, wrapping up a resoundingly successful mission.

During nearly 13 days in orbit, the crew installed the P5 spacer truss segment and rewired the International Space Station's power system. Discovery also delivered a new station crewmember, Sunita Williams, and brought Thomas Reiter home after six months on the station.

Other STS-116 crewmembers were Pilot William Oefelein and Mission Specialists Robert Curbeam, Joan



Discovery touches down on Runway 15 at NASA's Kennedy Space Center Shuttle Landing Facility as the sun sets Dec. 22.

Higginbotham, Nicholas Patrick and Christer Fuglesang, representing the European Space Agency.

"This mission is really a demonstration of how well we can work as a team at NASA," Polansky said.

2006 Year in Review



A space shuttle main engine test conducted April 21, 2006, at NASA Stennis Space Center marked the 40th anniversary of rocket engine testing at the center. The site conducted its first test April 23, 1966. The 2006 test was one of several significant events that took place at SSC throughout the year.

[See more stand-out events from 2006, Page 4](#)

From the desk of
Dr. Richard Gilbrech
 Director,
 Stennis Space Center



I hope everyone enjoyed a safe and happy holiday season. While December is a time I like to reflect on the past year, January is the time I set my sights forward. This New Year holds opportunities as well as challenges for Stennis Space Center and NASA. Our performance is crucial for space exploration, and while the first lunar landing may seem far away, our performance now will have a profound impact on our future. As I like to think of it, minor adjustments to the rudder at the beginning of a long voyage have a major influence on the final destination. We must steer a true course now by making the right decisions for the agency, leaving parochial attitudes at the door and thinking with the big NASA hat. There simply isn't enough time or money for NASA to do anything less and still make it back to the moon.

There are five shuttle flights scheduled for 2007 as we move forward from "return to flight." We must continue to support safe operation of the space shuttle through main engine testing. On-schedule completion of certification tests for the knife-edge seal modifications and pump green runs are critical to engine support for the manifest this year. Meeting the project schedule on one test stand will be a challenge, but is one with precedent.

We must complete A-1 stand modifications and preparation for J-2X testing on schedule. This effort will allow flexibility for this vital new program as design and test

requirements evolve. Our ability to meet facility planned upgrade schedules will set a positive tone as we move into a major test series. We are on the threshold of a return to the moon, and early successes will be needed to build support.

We continue to seek test programs for the E Complex. NASA has a major investment and significant potential in these facilities. Each successful test program adds to our experience base and enables future work. We should do our utmost to utilize this unique capability to address NASA and industry's component test goals.

We will continue to identify technologies and core capabilities from the Applied Science arena to support exploration initiatives. We will continue excellent support to current programs while working closely with other centers to seek and develop niches which SSC expertise can fill.

The new year also has other challenges. The agency will operate under a yearlong continuing resolution, resulting in reduced funding and inevitably some impacts with the hard decisions that must be made. NASA continues to develop transition strategies as we work toward the planned end of the Shuttle Program and the ramp-up of Constellation. Balancing facility and program funding while maintaining workforce competency and preserving human capital investment are continual efforts, and this year is no different. Meeting the goals and program requirements of our customers is the best way to assure a successful 2007 for Stennis Space Center and NASA. Where some would look at these challenges with trepidation, I see them as opportunities for our talented Stennis team to excel. Let's make this a great year!

SSC representatives attend 'A Capital Day'

Representatives from Stennis Space Center Myron Webb (second from left), legislative affairs officer, and John Wilson (second from right), education program development director with Mississippi Space Services, attended the Mississippi Economic Council's 'A Capital Day' at the Mississippi State Capitol on Jan. 4. They visited with state delegates, including local Representatives Dirk Dedeaux (left) and House Speaker Pro Tem J.P. Compretta (right), both longtime supporters of NASA and SSC. Attended by nearly 1,000 business and government leaders from around the state, 'A Capital Day' is an annual event that provides an opportunity for elected officials to interact with their statewide constituents during the first week of the regular legislative session.



FULFILLING THE VISION FOR SPACE EXPLORATION

A-1 Test Stand conversion gets under way

Work to refurbish the A-1 Test Stand at NASA Stennis Space Center is well under way, according to NASA's test complex construction manager, Dale Sewell.

The work is part of a larger project to convert the test stand from testing space shuttle main engines to testing J-2X engines for NASA's Constellation Program. The J-2X will power NASA's next-generation spacecraft, Ares I & V. A ceremony held at SSC on Nov. 9, 2006, marked the test stand's transition to its future role in the Constellation Program.

"The main work at this point is abra-

sive blasting and painting the upper levels of the test stand," Sewell said. "In the spring when the painting is complete, we will install the new piping and systems required to test the J-2X."

These are the largest and most difficult portions of the refurbishment project, scheduled to be finished at the end of March, according to Sewell.

The next phase will be the replacement of the master facility panel and the shop air system.



Paula Hensarling (left), Michael Jee and Skip Wright, all of Jacobs Sverdrup, examine piping that will be installed on the A-1 Test Stand's Level 5 engine deck. The piping, which is being reused from testing the X-33 engine, will be part of the hardware used in testing the J-2X engine.



Welder Robert Hayward (left) and fitter Rahiem Lyons, both of MSS, prepare a water pipe that will be fitted to the A-1 Test Stand as part of the refurbishing project.



A painter with South Gulf Inc. sprays primer on the west side of A-1 test stand. The outline of the NASA logo is seen at left. The familiar emblem is expected to get a fresh coat of paint in January.

On the test stand's Level 5 (its engine deck level), workers recently removed the master facility panel, which supplies all purges and pressurants for the test stand. The new panel is being built now and will be installed in April.

While subcontractor South Gulf Painting is busy on the test stand's upper half (Levels 7 through 10), NASA, Mississippi Space Services and employees of the NASA Test Operations Group are working on the conversion's next step: designing and fabricating the piping systems required for the J-2X engines.

"We have to be off the

stand while they're painting," Sewell said. "Some of the piping system design will be the same as was used for X-33 (a former project on the test stand). We're modifying that design now, and will have it ready to install when the painters are finished."

Similarly, SSC engineers in April 2006 pulled parts from the X-33 engine on display in SSC's visitor center, Stennis-Sphere, to reuse them. The pumps and valves they sought were identical to those on the Apollo Program's J-2 rocket engine, and will also be used on the J-2X.

"This is going to be a pretty dramatic change," Sewell said. "We haven't found any surprises so far, but A-1 has been working hard for the last 40 years and this work will help get it ready to support Constellation for the next 20 years."

2006 in Review: Year marks

For NASA and Stennis Space Center, 2006 was filled with historic milestones and key events, signaling a bright and busy future for the center.

New SSC leadership

NASA named Dr. Richard Gilbrech director of SSC on Jan. 23. He replaced Bill Parsons, who accepted the position of deputy center director of Kennedy Space Center in Florida. Parsons recently became center director at



Dr. Richard Gilbrech
Director

Kennedy. Gilbrech previously served as deputy director of Langley Research Center in Hampton, Va., and deputy director of NASA's Engineering Safety Center. Gilbrech's career at Stennis began in 1991, and he later served as director of the center's Program Integration Office.



Gene Goldman
Deputy Director

In mid-October, NASA named Arthur E. (Gene) Goldman as SSC's deputy center director.

The native Mississippian most recently served as space shuttle main engine project manager at Marshall Space Flight Center in Huntsville, Ala.

An administrative reorganization to align SSC with NASA's other field centers and Headquarters was implemented May 17. With emphasis on engineering excellence, the plan will help assure SSC's role in support of the Space Shuttle Program, improve capabilities by merging propulsion test and applied science technical staff, and streamline project management processes.

Rocket propulsion testing

SSC fired up the year with the first engine test of 2006 on Jan. 9. The test on the A-2 Test Stand was the first space shuttle main engine completely assembled at Kennedy Space Center. When the year came to an end, SSC had conducted 33 space shuttle main engine tests in the A Complex, eight RS-68 tests on the B-1 Test Stand and 119 tests on



SSC started 2006 with a roar when the year's first space shuttle main engine was test-fired on the A-2 Test Stand.

various engines and components in the E Complex.

A unique test project resulting from a joint partnership between Technology Development and Rocket Propulsion Test offices at SSC paved the way for the first-time use of methane as a propellant in propulsion testing at SSC. Called a thruster test bed, the small test stand at SSC's E-3 facility used gaseous methane and liquid oxygen as propellants. The tests support NASA's investigation into the use of nontraditional, green propellants to fulfill the goals of the nation's Vision for Space Exploration.

Hurricane Katrina heroism recognized

NASA's Deputy Administrator Shana Dale presented 25 medals, 33 commendations and 15 group awards to SSC employees during a March 3 ceremony honoring employees whose efforts helped ensure the safety of the center and its occupants when Hurricane Katrina struck the Gulf Coast region on Aug. 29, 2005.



NASA's Deputy Administrator Shana Dale addresses SSC employees at the March 3, 2006, Hurricane Katrina awards ceremony.

VIP visits

The crews from shuttle missions STS-121 and STS-115 visited the center in September and October, respectively. Also in September, SSC hosted California's Rep. Ken Calvert, chairman of the Space and Aeronautics Subcommittee, House Science Committee.



NASA Space Operations Deputy Associate Administrator Scott H. Hanley, Associate Administrator for Exploration Systems Scott H. Hanley and Stennis Space Center Director Dr. Richard Gilbrech, 2006, following the ceremony to turn the A-1 Test Stand Program's rocket engines.



STS-121 crewmembers (from left) Lisa Nowak and Piers Sellers.



STS-115 astronauts (from left) Jett, Dan Burbank, Heidemarie S. MacLean visit SSC in October 2006.

'On the Shoulders of Giants'

A panel of Apollo Program managers presented "On the Shoulders of Giants," a series of technical reports on April 25. Clay Boyce, Bob Gilbreth, Tim Harmon, Jerry Elver-

ked by milestones, vision



Director for Program Integration Scoot Hawes (left), NASA Associate Administrator Scott Horowitz, NASA's Constellation Program Manager Jeff Hanley and other Constellation Program managers visit SSC July 13, and announced the center will play a critical role in America's return to the moon. The group toured SSC's rocket engine test complex and spoke to employees about the crucial role the center will play in fulfilling America's Vision for Space Exploration, testing the upper stages of Ares I, and Constellation's cargo launch vehicle, Ares V, as well as testing the engines for Ares V's main stage.

discussed their experience in developing and testing rocket engines for the Saturn booster vehicle, the Command and Service Module and the Lunar Module.

Major anniversaries

April 12 marked the 25th anniversary of NASA's first space shuttle flight on STS-1, and April 23 was the 40th anniversary of the first rocket engine test-firing at SSC. Both events were highlighted with an April 21 space shuttle main engine test at SSC. Astronauts Chris Hadfield and Chris Ferguson visited SSC to participate in the occasion.



Clay Boyce, Bob Biggs, G.R. Pfeifer, Tim Harmon, Jerry Elverum and Paul Coffman discussed their experience in developing and testing rocket engines for the Saturn booster vehicle, the Command and Service Module and the Lunar Module.

A-1 Test Stand's new era begins

SSC conducted the final space shuttle main engine test on A-1 Test Stand on Sept. 29, ending the stand's work on the Space Shuttle Program. It has been temporarily decommissioned for testing the J-2X engine for the Constellation Program. A ceremony held Nov. 9 marked the A-1 Test Stand officially beginning its new program of work.



Center Director Richard Gilbrech; NASA Associate Administrator for Exploration Systems Scott Horowitz; and NASA Space Operations Deputy Associate Administrator for Program Integration Michael Hawes.

Project Constellation

On June 5, NASA announced center responsibilities associated with the Constellation Program for robotic and human moon and Mars exploration. SSC will manage and integrate all Constellation Systems rocket propulsion testing; lead development, certification and acceptance testing for the upper stage engine; provide development testing for the upper stage main propulsion test article; and lead acceptance testing for flight upper stage assembly.

NASA Associate Administrator for Exploration Systems Scott Horowitz, NASA's Constellation Program Manager Jeff Hanley and other Constellation Program managers visited SSC July 13, and announced the center will play a critical role in America's return to the moon. The group toured SSC's rocket engine test complex and spoke to employees about the crucial role the center will play in fulfilling America's Vision for Space Exploration, testing the upper stages of Ares I, and Constellation's cargo launch vehicle, Ares V, as well as testing the engines for Ares V's main stage.



The A-1 Test Stand was the focus of a ceremony held Nov. 9 to transition the facility to a new program of work: testing engines for the Ares I & V spacecraft. Standing with a plaque commemorating the change are (from left) Center Director Richard Gilbrech; NASA Associate Administrator for Exploration Systems Scott Horowitz; and NASA Space Operations Deputy Associate Administrator for Program Integration Michael Hawes.

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Burnside receives NASA-wide honor

Contract Specialist Carol Burnside, who works in SSC's Program Management Support Division of the Business Management Directorate's Acquisition Management Office, received the agencywide "Contract Specialist of the Year" honor Dec. 13, 2006, at the NASA Procurement Conference in Long Beach, Calif.



Burnside

"I could not have achieved this recognition without the support of my family and co-workers," Burnside said.

Burnside is recognized by NASA Headquarters, Earth Science Directorate for her expert development and management of fiscal years 05 and 06 Dual Use

Cooperative Agreement Notice. In FY 06, she was responsible for 65 contracts valued at more than \$143.6 million while serving as Alternate Center Implementation Manager for a new Contract Management Module. Burnside is SSC's recognized expert in utility contracts with the Mississippi Public Utilities Commission, and successfully facilitated a sitewide infrastructure upgrade to the power grid.

She is also AMO's recognized propellants management expert, annually administering propellants contracts valued in excess of \$16 million and helping maintain the integrity of the propulsion test calendar.

Frenchman's journals rich in Pearl River facts

Editor's Note: *Archaeologist Dr. Marco Giardino of NASA's New Business Development Office at SSC provides this LAGNIAPPE column dedicated to the history of Stennis Space Center and the surrounding area.*

One of the earliest explorers of the Pearl River was a French military officer, Regis du Roulet. He was a controversial figure in the early decades of French colonial rule in Mississippi, but Étienne Périer, Louisiana's governor (1726-32), liked him and sent him on several diplomatic missions to the Choctaws.

In 1732, the new governor, Jean-Baptiste Le Moyne de Bienville, sent du Roulet on a mission to visit the Choctaw villages from Mobile Bay, through Jackson, Miss., and then on to the Pearl River. Du Roulet left three journals describing his trip in great detail, including his survey of the entire course of the Pearl River.

When he arrived in Jackson (then known as Boukfouka),

International Space Station node arrives at SSC



The International Space Station Node Structural Test Article (STA) moves through NASA Stennis Space Center's canal system Dec. 21, 2006. Built by Boeing/McDonnell Douglas at Marshall Space Flight Center in the mid-1990s, it is a nearly-exact duplicate of the ISS' Node 1 'Unity' module. The Node STA was tested in support of qualifying 'Unity' for flight on the ISS, but was relegated to nonflight status. It was later instrumental in helping Lockheed Martin personnel at New Orleans' Michoud Assembly Facility develop aluminum-lithium welding repair techniques, and was the first module successfully welded in the ISS Program. When the ISS Program no longer needed the module, Kennedy Space Center donated the article to SSC. It then was shipped from MAF to SSC in late December. After being offloaded from its barge, it will be moved to climate-controlled storage on-site until it is put on permanent display in the visitor center.

Stennis Space Center HISTORY

he wrote: "I arrived at the hut of the Chief of Boukfouka, which is where I had to take on natives for the exploration of the River of Pearls. The village of Boukfouka is the village of the Tchactas (Choctaw) nation... This village is divided into three hamlets. Each group (hamlet) of which is four leagues from the others, and all three areas of the bayous have a circumference of at least 20 leagues." He reported the Choctaw called the Pearl River "Ecfnatcha" or "White River."

On Aug. 6, 1732, du Roulet and his party camped near the future site of the town of Gainesville, now part of Stennis Space Center's buffer zone. The following day, he reached the pass at the mouth of the Pearl River known at that time as Pass of Dion. On the other side of the pass, he described "a cluster of live oaks and an island which faces the entrance to Pearl River. This island is called Goose Island."

Because of his journals, we know no permanent European settlements were located along the Pearl River in 1732.

Douglass, DuBois, Washington

Three men, three views

1895 was a momentous year for African-Americans. W.E.B. DuBois, a black historian and sociologist, became the first African-American to receive a Harvard

Ph.D. Booker T. Washington, an educator and reformer, made his controversial "Atlanta Compromise" speech to the Cotton States International Exposition in Atlanta. Frederick Douglass, an escaped slave with oratorical and literary brilliance, died.

The three held differing views about attaining freedom and developing as men. Douglass received his education in secret. He was active in many organizational efforts to improve the conditions of his race. He believed government should protect citizens wherever they lived, and was opposed to the mass migration of blacks to the North.

Washington emphasized economic and educational progress for blacks aided by whites, while playing down political power and social equality. He believed blacks could advance themselves fastest through hard work. DuBois believed all people of African descent had common interests, and should collectively, constantly speak out against discrimination. He believed the best way to defeat prejudice was for college-educated blacks to fight it.

Perhaps each of these men would be pleased with our progress (desegregation, the assault on discrimination, the passing of the Voting Rights Act of 1957 and the

From the Office of Diversity and Equal Opportunity

Civil Rights Act of 1964, etc.). Perhaps each would emphasize that the job is not yet done.

The first black citizen to hold high

rank in the U.S. government, Douglass would be thrilled with the influence and respect gained through the appointments of blacks to many high roles in government, business and education.

Washington might be pleased with those who worked and are working to achieve their dreams, but disappointed with the dependency of many on social programs.

DuBois would be in awe of the progress over the past 110 years. He would emphasize the responsibility that college-educated blacks have to share their knowledge and enthusiasm and help the less advantaged reach their potential.

They would question the weakening family structure and the prevalence of black-on-black crime. They also might applaud the corporate success of many black Americans, and their willingness to share the wealth.

The stories of Douglass, DuBois, and Washington remind us every generation sets its own standard for its own time, and in judgment of the past. The black man's experiences in the white man's economic and social world have, over time, convinced him that he is responsible for his own development. Tapping this rich experience will help lead America toward peace and understanding.

AROUND NASA

■ 'Space Station and Beyond':

Images from the world's first HDTV broadcast from space are again flashing across TV screens around the world, as Discovery HD Theater airs an updated program called "Space Station and Beyond." The program features additional footage that highlights accomplishments attained since the original HD footage aired on Nov. 15, 2006. On that day, NASA made history with the first live HDTV broadcasts from space, in cooperation with the Japan Aerospace Exploration Agency, Discovery HD Theater and Japanese broadcast network NHK. For more information on show times, visit Discovery Channel HD Theater on the Internet.

■ Mars team teaches old rovers new tricks:

NASA's twin Mars rovers, at the third anniversary of their landings, are getting smarter as they get older. The unexpected longevity of Spirit and Opportunity is giving NASA a chance to field-test on Mars some new capabilities useful to these missions and future rovers. Spirit began its fourth year on Mars on Jan. 3; Opportunity, on Jan. 24. In addition to their continuing scientific observations, they are now testing four new skills uploaded to their onboard computers. One of the new capabilities enables spacecraft to examine images and recognize certain types of features. Another new feature enables a rover to keep recognizing a designated landscape feature as the rover moves, to help it navigate away from hazards.

■ X-ray evidence supports possible new class of supernova:

Evidence for a significant new class of supernova has been found with NASA's Chandra X-ray Observatory and the European Space Agency's XMM-Newton. These results strengthen the case for a population of stars that evolve rapidly and are destroyed by thermonuclear explosions. Such "prompt" supernovas could be valuable tools for probing the early history of the cosmos.

Hail & Farewell

NASA at SSC bids farewell to the following:

- Laura Lindhardt** – Engineering and Science Directorate
- Andrew Bracey** – Engineering and Science Directorate
- Bob Venezia** – Project Directorate



Attendees scramble for T-shirts propelled into the audience at the FIRST Robotics Competition regional kickoff event Jan. 6 in the StenniSphere auditorium. Area FIRST Robotics teams conducted demonstrations with their robots to generate enthusiasm for FIRST Robotics Competition events.



NASA engineers Scott Olive (left) and Bo Clarke answer questions during the 2007 FIRST Robotics Competition regional kickoff at StenniSphere, SSC's visitor center. The SSC employees and FIRST Robotics volunteer mentors are standing near a mock-up of the playing field for the FIRST Robotics' 2007 'Rack n' Roll' challenge.

SSC hosts 29 schools at FIRST Robotics regional kickoff event

Twenty-nine high-school teams from four states converged on NASA Stennis Space Center on Saturday, Jan. 6, to kick off the 2007 FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition season. The event held at StenniSphere begins a frenzied six weeks leading up to regional competitions.

FIRST presented a game problem and parts kits to Louisiana, Mississippi, Florida and Tennessee high-school teams who'll build robots for spring contests. The competition aims to inspire students to pursue engineering and technology. Teams watched a live broadcast from FIRST's Manchester, N.H., headquarters that revealed this year's competition challenge. With the help of their engineer mentors, each team must build a robot to meet the challenge.

This year's "Rack n' Roll" challenge requires robots to lift inflatable pool tubes and hook them onto the "spider" arms of an octagonal rack. During each match, teams will score points by creating rows of the tubes hanging from the rack like a giant game of tick-tack-toe.

Because NASA advocates robotics and technology education, SSC supports FIRST Robotics Competition by providing coaches, mentors and other volunteers. NASA gave \$284,000 in grants to 26 Louisiana and Mississippi teams for the 2007 competition season. In addition, NASA gave \$150,000 to sponsor the first-ever Bayou Regional FIRST Robotics competition in New Orleans, to be held March 8-10.

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