National Aeronautics and Space Administration

LAGNIAPPE

John C. Stennis Space Center

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NASA deputy administrator visits Stennis

NASA Deputy Administrator Lori Garver (left) and Stennis Space Center Director Patrick Scheuermann discuss the proposed fiscal year 2012 federal budget during an all hands session on March 10. During the gathering with NASA employees, Garver emphasized the space agency's commitment to maintain a solid focus on human spaceflight and exploration priorities. Garver and Scheuermann also shared budget highlights for Stennis from the fiscal year proposal, emphasizing that the primary focus for the facility will remain rocket engine testing for the future of the American space program. Stennis Space Center was established in the 1960s to test Saturn V rocket stages that helped carry humans to the moon. It also tested every main engine used on more than 130 space shuttle missions.

Endeavour targeted to fly April 29

Just weeks after space shuttle Discovery completed its final flight to space, Endeavour is targeted for an April 29 launch of its farewell mission to the International Space Station. During the scheduled 14-day mission, Endeavour will deliver the Alpha Magnetic Spectrometer and various spare parts to the space station. Congress authorized construction of the Endeavour orbiter in 1987 as a replacement for shuttle Challenger. The new spacecraft was delivered to Kennedy Space Center in Florida in May 1991. One year later, on May 7, 1992, Endeavour was launched on its maiden mission, STS-49, to retrieve and relaunch a malfunctioning satellite. Since then, it has flown 23 additional missions. Endeavour is named after the first ship commanded by 18th-century British explorer James Cook, famous for his expeditions in the South Pacific. The name was chosen through a national competition that asked elementary and secondary school students to select a name based on an exploratory or research sea vessel.

From the desk of

Katie Wallace

Director
Office of Education
Stennis Space Center

"What does NASA have to do with education?" is a question I hear frequently. The easy answer is that NASA is the only government agency that has, in its charter, the responsibility to educate the general public. Education fits into NASA's Strategic Goal 6, to "share NASA with the public, educators, and students to provide opportunities to participate in our mission, foster innovation, and contribute to a strong national economy." The more important answer is that, as a technical agency, NASA has a duty to help educate and inspire the next generation of engineers and scientists.

NASA is in a unique position to excite and inspire students about science, technology, engineering, and mathematics education (STEM) and to help grow our technical workforce, thus ensuring our country's future. Studies cite STEM education as a national priority. In today's global economy, an educated, innovative, motivated workforce is our country's most precious resource. Key indicators show the United States is losing its technological edge. These indicators include: 1) math and science middle school test scores that rank in the lower half among industrialized countries, 2) declining enrollment in engineering and technical science majors, and 3) decreased funding for research in physical sciences. (National Academies Press, *Rising Above the Gathering Storm*, 2007).

NASA seeks to increase student interest in STEM through projects ranging from kindergarten to post-doctoral. The Stennis education team supports all NASA education programs. It also has produced original projects and activities, including Mass vs. Weight and Spaced Out Sports curricula. Both teach Newton's Three Laws of Motion, a critical concept for fourth through eighth graders. Highlight programs include Astro Camp, a summer and Saturday science camp for ages 7-15; Highschoolers Uniting with NASA to Create Hardware (HUNCH), a hands-on technology project; and FIRST Robotics, a project to teach the basics of robotics and programming to middle and high school students. In each, a large number of education team members and NASA mentors interact with students.

Research shows long-term exposure to and engagement with STEM mentors increases the likelihood that students will major in those fields. This is where volunteers and mentors are so important. Stennis is very fortunate to have employees who volunteer time and energy to reach out to students. Employees support many of our education projects, including FIRST Robotics, HUNCH, the Digital Learning Network, and internships and fellowships. Without such engagement, the Education Office could not be successful. To each volunteer, thank you very much. If you want to volunteer, please call anyone on the education team. To learn more about NASA and Stennis education efforts, visit: http://education.ssc.nasa.gov.

Katie

U.S. Senate staff members visit Stennis

Lonnie Dutreix (center), manager of the A-3 Test Stand Project with NASA's Project Directorate at Stennis Space Center, stands with a pair of staff members for U.S. Sen. Roger Wicker, R-Miss., during their March 22 visit. In addition to visiting the A-3 Test Stand construction site, Mike Cilenti and Nicole Rohr toured various facilities at Stennis to learn about the range of work under way at the south Mississippi federal city. The staff members also toured the INFINITY at NASA Stennis Space Center science facility construction site and received briefings on naval oceanography work at Stennis and the efforts of NASA's Applied Science and Technology Project Office in the wake of the Gulf of Mexico oil spill last year. Wicker served 13 years in the U.S. House of Representatives before he was appointed to the U.S. Senate in 2007 to replace the retiring Trent Lott. He won a full term during a subsequent 2008 special election.

FULFILLING NASA'S EXPLORATION MISSION

A-2 test stand achieves milestone

Forty-five years after its first Saturn V rocket stage test and 35 years after its first space shuttle main engine test, the A-2 Test Stand at Stennis Space Center achieved a milestone in preparation for its third major rocket engine test project.

A facility readiness review in mid-March indicated all major modifications have been completed on the historic A-2 stand to begin testing the next-generation J-2X rocket engine this summer.

The new test project comes as Stennis celebrates its 50th anniversary year. On Oct. 25, 1961, NASA publicly announced plans to build the facility to test the massive Saturn V rocket stages for the Apollo Program.

The first test of a Saturn V second stage at Stennis was performed at the A-2 stand on April 23, 1966. Stennis engineers tested 27 Saturn V rocket first- and second-stages for the Apollo Program, including those used to carry humans to the moon.

In the mid-1970s, the stand was modified from Apollo parameters to test space shuttle main engines. The first space shuttle main engine test on the A-2 stand was conducted on March 31, 1976. In ensuing decades, Stennis engineers tested main engines used to power more than 130 shuttle missions. The last space shuttle main engine test was performed on the A-2 stand in July 2009.

After a decommissioning period, Stennis employees spent 10 months converting the A-2 stand from space shuttle main engine parameters to those needed for the new test series. The March 16-17 facility readiness review identified no major actions, which means the A-2 Test Stand is ready to receive the J-2X engine and begin checkout testing activation of engine critical systems. Stand employees will work through the final items to be completed before installation of a J-2X engine in early June.

"Some of the hardware was decades old and nearing the end of its serviceability," said Gary Benton, manager of the J-2X engine testing project at Stennis. "Also, the J-2X has different testing requirements than the space shuttle main engine. It was a major transition completed on a very demanding schedule."

The 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, and included the installation of a new J-2X engine start system. Liquid oxygen and liquid hydrogen transfer lines that dated to the 1960s also were replaced, as was other stand piping. Control systems were upgraded as well.

The J-2X engine is being developed by Pratt & Whitney Rocketdyne for NASA as a next-generation engine that can carry humans beyond low-Earth orbit to deep space. Engineers at NASA's Marshall Space Flight Center in Huntsville, Ala., manage J-2X engine development. Stennis is preparing three stands to test the new engine. Power pack testing is scheduled on the A-1 Test Stand. Verification and sea-level testing will be conducted on the A-2 Test Stand. The A-3 Test Stand under construction and set for activation in 2013 will allow operators to test new engines at simulated altitudes up to 100,000 feet, a critical requirement for a deep space engine.

Plans now are to install a J-2X research-and-development engine on the A-2 Test Stand this summer. Testing will begin soon afterward and continue throughout the year.

"This is the future for American space exploration," Benton said. "We are excited to play a key part in the progress of the nation's space program."

Stennis tests AJ26

A team of engineers from Stennis Space Center, Orbital Sciences Corporation and Aerojet conduct a successful test of an Aerojet AJ26 rocket engine on March 19. Stennis is testing AJ26 engines for Orbital Sciences to power commercial cargo missions to the International Space Station. Orbital has partnered with NASA through the Commercial Orbital Transportation Services initiative to carry out eight cargo missions to the space station by 2015, using Taurus II rockets. The first of the International Space Station supply flights is scheduled for early 2012.

Ribbon cut on cryogenic facility

NASA cut the ribbon on a new cryogenics control center at Stennis Space Center on March 30, marking near completion of a key project to strengthen protection for liquid hydrogen and liquid oxygen barges in the event of another natural disaster like Hurricane Katrina.

The new structure consolidates LH and LOX operations and provides a safe shelter for a disaster ride-out crew. The facility and several related actions also enhance Stennis' capability to remain operational in the aftermath of a natural disaster.

In 2005, Hurricane Katrina hit Stennis infrastructure hard, leading NASA to conduct an internal study to identify support systems at the site that should be modified or "hardened" to withstand the impacts of future storms. The study cited the need to provide a safe haven for LH and LOX cryogenic barges needed to perform rocket engine testing at the south Mississippi facility.

The McDonnel Group of Metairie, La., began construction of the new center in October 2008 and completed work the following fall. The company also began work in 2008 to prepare and activate three barge docks and to install a new LH truck-to-barge fill system. Those projects were completed by the end of 2010.

NASA cut the ribbon on a new cryogenics control center at Stennis on March 30. Participants included (l to r): Jason Zuckerman, director of project management for The McDonnel Group; Keith Brock, director of the NASA Project Directorate at Stennis; Stennis Deputy Director Rick Gilbrech; Steve Jackson of Jacobs Technology; and Troy Frisbie, Cryo Control Center Construction project manager for NASA Center Operations at Stennis.

The dock projects ensure a safe haven for all six LOX and three LH barges at Stennis. The new truck-to-barge fill system provides a critical backup ability to transfer LH from delivery trucks to barges if the existing transfer system ever is damaged.

Jacobs Technology's NASA Test Operations Group provided upgrades to the comprehensive barge loading control and monitoring system. This included the design, installation and activation of a Cryogenics Controls and Instrumentation system in the new control center. The new system is computer controlled and digitally based, compared to the previous manual switching system that used analog displays.

Completion of the safe haven project comes as Stennis Space Center celebrates its 50th anniversary year. Built to test Saturn V rocket first- and second-stages for NASA's Apollo Program, Stennis also tested every main engine used on more than 130 shuttle missions. Stennis now is preparing to test next-generation engines being developed to carry humans into deep space.

Propulsion review at Stennis

NASA's Rocket Propulsion Test Program recently hosted their Program Management Review at Stennis Space Center. In addition to the Rocket Propulsion Test Management Board, other special guests were in attendance. Participants included representatives from NASA Headquarters and several centers: Bob Clay, Wei-Yen Hu, Patrick Kelly, Sandra Moore (Headquarters); Michele Beisler, Judy Bourgeois, Wendy Bradford, Mike Cockrell, Lynn Heberling, Steve Jones, Bryon Maynard, Christel McDonald, Mark Moody, Larry Pigott, Kirk Sharp, Roger Simpson, Patrick Skrmetti, Mark Warren (Stennis); Lou Barrera, Bob Kowalski, Sheryl Reynold (White Sands Test Facility); Nancy McNeill, Mike Nichols (Marshall Space Flight Center); Dave Taylor, Gerald Hill (Glenn Research Center's Plum Brook Station); Jared Sass (Kennedy Space Center); and Pete Zeender (Johns Hopkins University).

Stennis Legends Series continues

A trio of current and former leaders discuss the growth of Stennis Space Center during a Legends Lecture Series onsite on April 5. Stennis launched the Legends Lecture Series last November as part of a yearlong celebration of its 50th anniversary. The April 5 session focused on growth of Stennis into a unique federal city during the 1970s and the establishment of NASA's Earth Resources Laboratory at the site. NASA announced plans to build Stennis Space Center as a rocket engine test facility on Oct. 25, 1961. The facility is now home to more than 30 resident agencies, which includes federal, state, academic and private organizations and numerous technology-based companies. Presenters at the April 5 event included (l to r): George Schloegel, mayor of Gulfport; Jack Rogers, former director of NASA Center Operations at Stennis; and Wayne Mooneyhan, former director of NASA's Earth Resources Laboratory at Stennis.

Stennis hosts Area III Special Olympic games

(Left photo) A military color guard opens the 2011 John C. Stennis Area III Track and Field Competitions on March 19. Stennis is an annual host for the Special Olympics games, which draws special athletes from Hancock, Harrison, Pearl River, and Stone counties and involves hundreds of volunteers and sponsors. The 2011 event was sponsored by the NASA Shared Services Center, located at Stennis. (Right photo) Chris Jernigan from Biloxi Community Homes throws a flying disc through a target during the Stennis games, as NASA employee Jacqueline Wall offers encouragement. Wall was one of a number of Stennis employees to serve as volunteers during the annual competition.

Stennis exceeds energy reduction levels

Stennis Space Center exceeded the federal energy intensity reduction requirement for the second year in a row during the most-recent fiscal year.

The energy intensity total for Stennis during fiscal year 2010 was 19.4 percent below the 2003 energy intensity baseline. Stennis is the only NASA center to exceed the 2010 target of a 15 percent reduction in energy use, said Missy Ferguson, NASA energy manager at Stennis.

During the most-recent fiscal year, Stennis also ranked first in water intensity reduction at 41 percent below the 2007 intensity baseline.

All NASA centers participated in a yearlong competition to determine which center had the largest percentage reduction in energy and water intensity. Stennis finished second in energy and fourth in water among all centers for the largest reduction.

Mark your calendar – Old Timers' Day, May 20 at 4 p.m., Cypress House pavilion

Columbia launches Shuttle Program

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 Misissippi rocket engine test center's history.

A NASA Web story characterizes it as "the boldest test flight in history" – and given the facts, it is hard to see the statement as exaggeration.

In the early months of 1981, the United States had not launched a human into space for six years. It never had used solid-fuel rocket boosters on a manned flight. It never had employed a reusable spacecraft. And it certainly never had launched a manned space vehicle for the first time without an unmanned powered test flight.

Yet, there stood the reusable space shuttle Columbia on Launch Pad 39A at Kennedy Space Center on April 12, 1981, with two astronauts aboard, ready for its maiden flight into space. Early in the morning, space shuttle Columbia roared off the launch pad, opening a new era of space travel for America.

The maiden flight – and the subsequent 30-year space shuttle era – was powered by highly sophisticated main engines tested at NASA's Stennis Space Center in Mississippi. Stennis engineers and operators also had tested the three-engine configuration used to power the shuttle. More than 130 times during the next three decades, a trio of Stennis-tested engines would power each space shuttle into orbit, accelerating the spacecraft from 0 to more than

Space shuttle Columbia lifts off from Kennedy Space Center in Florida, on its maiden mission on April 12, 1981.

17,000 miles an hour in eight-and-a-half minutes.

Robert Crippen was one of two astronauts who made the maiden voyage aboard the shuttle Columbia in 1981. When he and fellow astronaut John Young returned from their successful mission, they visited Stennis Space Center. "It's still mind-boggling to me," Crippen told facility employees. "You made it possible for us to sit back and ride. We couldn't even make it look hard."

America had returned to space – on dreams and spacecraft powered by Stennis Space Center.

Stennis introduces An Hour in History series

Stennis Space Center historian Marco Giardino speaks to center employees during the first An Hour in History session March 22. The Stennis History Office launched the series as part of the rocket engine test facility's yearlong 50th anniversary celebration.The inaugural session focused on Stennis history during the early 1960s. Subsequent sessions will focus on other aspects of Stennis history as part of the "50 Years of Powering Dreams" anniversary theme. An Hour in History sessions are planned in June, August and October. The 50th anniversary celebration culminates in late October to commemorate NASA's public announcement of plans to build the test facility in Hancock County, Miss., on Oct. 25, 1961.

Office of Diversity and Equal Opportunity

Genetic act provides needed protection

Laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths disclosed, and manners and opinions change with the change of circumstances, institutions must advance also, and keep pace with the times.

Thomas Jefferson, July 12, 1810

When federal legislation to prevent the misuse of genetic information was introduced in 1995, many in the health care, research, and policy communities considered the measure to be forward looking. Others called it premature. After all, scientists were just getting ready to start sequencing the human genome. Only about 300 genetic tests were available, most of them for rare diseases and usually performed in research settings. Yet, anticipating an explosion in genetic testing, and sensing a growing concern that genetic information could be used against them by health insurers and in the workplace, many became convinced that reforms were needed as soon as possible.

In the Genetic Information Nondiscrimination Act of 2008, the United States now has a federal law to protect consumers from discrimination by health insurers and employers on the basis of genetic information. In the years between GINA's introduction and enactment, genomic information grew exponentially, revolutionizing biomedical research, and many believe, promising an eventual transformation of health care. Researchers completed the reference sequence of the human genome in 2003 and went on to produce a map of human genetic variation that has greatly accelerated the search for genes involved in common diseases. Genetic tests now are available for more than 1,500 conditions. With many of these tests becoming available in the clinic and even offered directly to consumers, GINA's protections can no longer be dismissed as premature; they are rapidly coming to seem essential to Americans' ability to make the most of the much-anticipated era of personalized medicine. Following is a simple look at what GINA does and does not do.

What GINA does

- Prohibits health insurers from using a person's genetic information in determining eligibility or premiums.
- Prohibits insurers from requesting or requiring that a person undergo a genetic test.
- Prohibits employers from using a person's genetic information in making employment decisions, such as hiring, firing, job assignments, or any other terms of employment.
- Prohibits employers from requesting, requiring, or purchasing genetic information about persons or their family members.

What GINA does not do

- Does not prevent health care providers from recommending genetic tests to their patients.
- Does not mandate coverage for particular tests or treatments.
- Does not prohibit medical underwriting based on current health status.
- Does not cover life, disability, or long-term-care insurance.
- Does not apply to members of the military.

Hail & Farewell

NASA bids farewell to the following:

Marleen Phillips	Attorney Office of Chief Counsel

And welcomes the following:

Rae Lyn Anderson	AST, Quality Assurance Office of Safety & Mission Assurance
Chris Copelan	Education Program Specialist Office of Education
David Carver	AST, Electrical Experimental Equip. Engineering & Test Directorate

Stennis enjoys Women's History Month Quiz Bowl

Stennis employees (l to r) Janet Kovac (NASA Shared Services Center), Lael Butler (Environmental Protection Agency Gulf of Mexico Program), Mary Carter (NSSC) and Maura Lohrenz (Naval Research Laboratory) celebrate a correct answer during the Women's History Month Quiz Bowl held onsite March 24. The contest between the women and a panel of four men tested each side's knowledge of women's history facts and events. This year's Women's History Month theme was "Our History is Our Strength." Befitting that sentiment, the panel of women won the contest.

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Area robotics teams earn FIRST honors

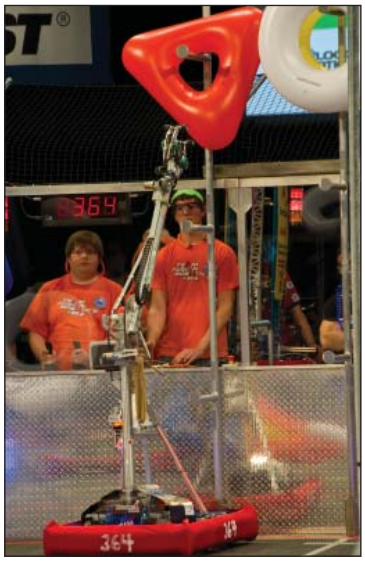
Students from 38 high school teams in seven states competed for top honors during the 2011 FIRST (For Inspiration and Recognition of Science and Technology) Robotics Bayou Regional competition held March 17-19 in the New Orleans area.

An alliance of teams from Gulfport High School, St. Patrick Catholic High School in Biloxi and Woodlawn High School in Baton Rouge, La., emerged as the tournament champion. In addition, Northshore High School in Slidell, La., walked away with the most prestigious of honors, earning the Regional Chairman's Award, recognizing the team creating the best partnership effort and best exemplifying the true meaning of FIRST.

St. Patrick Catholic High School also won the second-highest award, the Engineering Inspiration Award for outstanding success in advancing respect and appreciation for engineering and engineers, both within their school as well as their community.

Two area students also were named Dean's List finalists – Hannah Sorrell from Northshore High School and Nicolas Jones from Gulfport High School. The Dean's List award recognizes students who lead teams and communities to increased awareness of FIRST and its mission. Two students are selected from each regional event as finalists for the 2011 award.

Of the 31 Louisiana and Mississippi teams in the Bayou Regional field, 20 made it past qualifying rounds to compete in the quarterfinals of the alliance portion of the weekend. Twelve of those advanced to the semi-finals – and five moved on to compete in the tournament finals.



Members of the robotics team from Gulfport High School guide their robot during the annual FIRST Robotics Competition.

Several Louisiana and Mississippi teams also garnered awards for various aspects of their robotics work and their participation at the annual event.

Stennis DEVELOP student attends national symposium

NASA Administrator Charles Bolden (third from left) stands with DEVELOP students and personnel during the 49th Robert H. Goddard Memorial Symposium held March 29-31 in Greenbelt, Md. Bolden was a keynote speaker for the symposium, which focused on the theme, "NASA: More Than You Imagine." Stennis intern and former DEVELOP student Jason Jones (center, rear) was among those who attended the conference, which featured a networking reception highlighting the DEVELOP Program. DEVELOP is a NASA training program in which student interns work with NASA and partner mentors on Earth science research projects. Other symposium participants included (l to r): Rachel Moore (Goddard Space Flight Center), Malcolm Jones (Langley Research Center), Bolden, Jones, Katrina Laygo (Jet Propulsion Laboratory), Lindsay Rogers (national DEVELOP assistant program manager) and Amanda Cutright (Langley).