



# LAGNIAPPE

John C. Stennis Space Center

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December 2012

## NASA, Stennis rank among best places to work

**N**ASA was named the best place to work in the federal government among large agencies in a survey released today by the Partnership for Public Service, a nonprofit, non-partisan organization. This ranking, which reflects NASA's highest results since this index was developed, makes clear that the agency's work force is focused on carrying out the nation's new and ambitious space program.

"The best workforce in the nation has made NASA the best place to work in federal government," said NASA Deputy Administrator Lori Garver, who is accepting the award at a ceremony this morning in Washington, D.C.

"Our employees are carrying out the nation's new strategic missions in space with heart-stopping landings on Mars, cutting-edge science and ground-breaking partnerships with American companies to resupplying the space station. They are truly leading in the innovation economy."

The rankings are based on responses from nearly 700,000 federal workers. The Best Places to Work rankings are based on data from the Office of Personnel Management's annual Federal Employee Viewpoint Survey conducted from April through June 2012 and additional survey data from nine agencies plus the Intelligence Community. This is the seventh edition of the Best Places to Work rankings since the first in 2003.



NASA and Stennis Space Center were recognized by Partnership for Public Service as best places to work in government during a Dec. 13 ceremony in Washington, D.C. Ceremony participants included: Greg Robinson (l to r), NASA deputy chief engineer; Jeri Buchholz, assistant administrator for NASA's Human Capital Management; Lori Garver, NASA deputy administrator; Rick Gilbrech, Stennis Space Center director; and Dorsie Jones, manager of the Stennis Office of Human Capital.

NASA's Stennis Space Center was ranked second in the sub-agency component category.

"I am happy for all my coworkers across NASA for the agency's great results in this year's survey," Stennis Director Rick Gilbrech said. "I feel especially blessed to work with such a fine group of outstanding people at NASA's Stennis Space Center."

During the past year, NASA's employees continued to implement America's ambitious space exploration program, landing the most sophisticated rover on the

surface of Mars, carrying out the first-ever commercial mission to the International Space Station and advancing the systems needed to send humans deeper into space.

Just last week, NASA announced the next Mars rover mission and recently announced the first year-long crew stay on the International Space Station. As the agency continues developing the capabilities to explore the solar system and beyond, as well as understand our home planet and make life better here, workers with a wide range of skills and interests will be critical.

*“I am certain as I look to 2013  
that we possess the innovative spirit, creativity, commitment  
and leadership to usher in another successful year.”*

From the desk of  
**Ken Human**

Associate Director, Stennis Space Center



**A**s I reflect back on 2012 here at Stennis and across the agency, I can count a wealth of accomplishments and first-time achievements that we should all be proud of.

For instance, the recently released Employee Viewpoint Survey (EVS) results speak volumes about our workplace culture, as Stennis and NASA once again lead the government as best places to work. Under-scoring our effectiveness in the areas of diversity and innovation, Stennis and NASA achieved several “firsts” this year that exemplify the extraordinary caliber of our workforce. Setting a new record for the longest-duration test firing ever conducted in the A Test Complex, the J-2X powerpack test on the A-1 Test Stand ran 1,350 seconds on July 24, 2012. This year also marked the first J-2X test conducted by a female engineer; the first two large engine tests conducted simultaneously by Stennis teams; and the first instance of two female engineers conducting tests on the same day.

In the meantime, the agency culminated years of innovative effort (and seven minutes of terror) when the Mars rover Curiosity successfully landed on the Red Planet. Elsewhere in space, the Kepler Space Telescope continues to find new planets in our galaxy, leading some astronomers to speculate that there may be more planets than stars in the universe.

Achieving another milestone, this one in the area of outreach, we reinforced our focus on sharing our NASA mission and the Stennis story with the public with the opening of Stennis’ new “front door,” the INFINITY Science Center. INFINITY represents the dedication of our “federal city” to outreach and

community involvement, and our Stennis agencies are committed to promoting STEM (science, technology, engineering and mathematics) through this premier venue. Additionally this year, NASA sponsored many STEM education activities, including FIRST (For Inspiration and Recognition of Science and Technology) Robotics, the FIRST LEGO® League, and Spaced Out Sports, and employees reached out to a multitude of citizens by sharing their talents with schoolchildren, teachers and members of communities across Mississippi and Louisiana.

Late in the year in the Office of the Director, Dr. Rick Gilbrech took the helm from Patrick Scheuermann, who left to assume the director’s position at Marshall Space Flight Center in Huntsville, Ala. This milestone only underscores our EVS results, which ranked very high in the area of employee respect for our organization’s senior leadership. Stennis has a strong tradition of growing strong leaders for the agency, and I’m confident that many of NASA’s leaders of tomorrow are in our midst right now.

As I consider all of this, it’s clear to me how fortunate we all are to have such exciting and rewarding jobs just half a century into the space age. Together, we have proven the value of the Stennis workforce and our NASA family, and I am certain as I look to 2013 that we possess the innovative spirit, creativity, commitment and leadership to usher in another successful year.

Have a safe and happy holiday season!

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## FULFILLING NASA'S EXPLORATION MISSION

# NASA completes J-2X powerpack testing at Stennis Space Center

NASA on Dec. 13 took another step toward human exploration of new destinations in the solar system. At the agency's Stennis Space Center in Mississippi, engineers conducted the final test-firing of the J-2X powerpack assembly, an important component of America's next heavy-lift rocket.

The J-2X engine is the first human-rated liquid oxygen and liquid hydrogen engine developed in the United States in decades. Designed and built by NASA and industry partner Pratt & Whitney Rocketdyne of Canoga Park, Calif., the engine will power the upper stage of NASA's new 143-ton (130-metric-ton) Space Launch System (SLS) rocket. The powerpack is a system of components on top of the engine that feeds propellants to the bell nozzle of the engine to produce thrust.

"The determination and focus by teams at NASA's Marshall Space Flight Center and Stennis on designing and perfecting the J-2X engine helps show the great strides of progress made on the overall program," SLS Program Manager Todd May said. "We are inspired to stay the course and pursue our goal of exploring deep space and traveling farther than ever before."

The powerpack was worked out separately from the engine to more thoroughly test its limits. It also can be operated under a wider range of conditions. The tests provide a trove of data to compare with analytical predictions of the performance of several parts in the turbopump and flexible ducts.

"These tests at Stennis are similar to doctor-ordered treadmill tests for a person's heart," said Tom Byrd, J-2X engine lead in



The J-2X powerpack assembly was fired up one last time on Dec. 13 at NASA's Stennis Space Center in Mississippi, finishing a year of testing on an important component of America's next heavy-lift rocket. The powerpack assembly burned millions of pounds of propellants during a series of 13 tests during 2012 totaling more than an hour and a half. NASA engineers will remove the assembly from the test stand to focus on tests of the fully integrated engine.

the SLS Liquid Engines Office at Marshall in Huntsville, Ala. "The engineers who designed and analyze the turbopumps inside the powerpack are like our doctors, using sensors installed in the assembly to monitor the run over a wide range of stressful conditions. We ran the assembly tests this year for far longer than the engine will run during a mission to space, and acquired a lot of valuable information that will help us improve the development of the J-2X engine."

The powerpack assembly burned millions of pounds of propellants during a series of 13 tests totaling more than an hour and a half in 2012. The testing team set several records for hot-firing duration at Stennis test stands during

the summer. NASA engineers will remove the assembly from the test stand to focus on tests of the fully integrated engine. Installation on a test stand at Stennis will begin in 2013.

The SLS will launch NASA's Orion spacecraft and other payloads from the agency's Kennedy Space Center in Florida, providing an entirely new capability for human exploration beyond low Earth orbit. The program is managed at Marshall Space Flight Center.

For more information about the J-2X engine and NASA's Space Launch System, including links to video and images of the Dec. 13 test, visit: [www.nasa.gov/sls](http://www.nasa.gov/sls)



A J-2X powerpack assembly burns brightly during a hot-fire test Nov. 27 at Stennis Space Center. The test, which ran for 278 seconds, verified newly installed strain gauges designed to measure the turbine structural strain when the turbopump is spinning at high speeds that vary between 25,000 and 30,000 rotations-per-minute.

## FULFILLING NASA'S EXPLORATION MISSION



# A year after launch, Curiosity rover busy on Mars

The NASA Mars rover Curiosity began its flight to Mars on Nov. 26, 2011, from Cape Canaveral Air Force Station, Fla., tucked inside the Mars Science Laboratory spacecraft.

One year after launch and 16 weeks since its dramatic landing on target inside Gale Crater, Curiosity has returned more than 23,000 raw images, driven 1,696 feet and begun helping researchers better understand the area's environmental history.

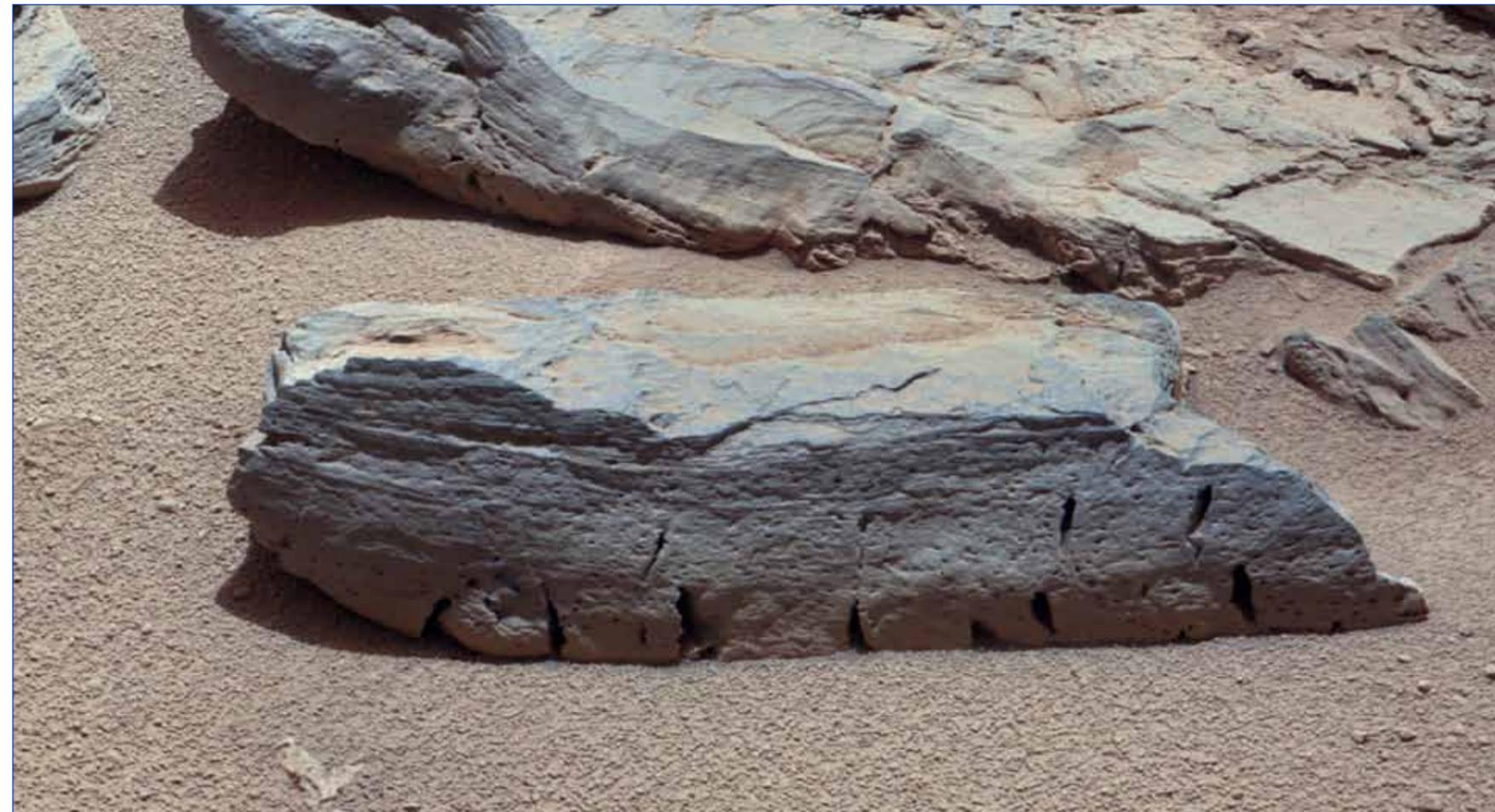
The car-size rover is at a site called "Point Lake" overlooking lower ground to the east, where the rover team intends to find a target for first use of Curiosity's rock-sampling drill.

During a two-year prime mission, researchers are using Curiosity's 10 science instruments to assess whether the study area in Gale Crater ever has offered environmental conditions favorable for microbial life.

NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology, Pasadena, manages the Mars Science Laboratory Project for NASA's Science Mission Directorate, Washington. JPL designed and built the project's Curiosity rover.

More information about Curiosity is online at: [www.nasa.gov/msl](http://www.nasa.gov/msl) and <http://mars.jpl.nasa.gov/msl/>.

Individuals can follow the mission on Facebook at: [www.facebook.com/marscuriosity](http://www.facebook.com/marscuriosity) and on Twitter at: [www.twitter.com/marscuriosity](http://www.twitter.com/marscuriosity).



(Above photo) This panorama is a mosaic of images taken by the Mast Camera (Mastcam) on the NASA Mars rover Curiosity while the rover was working at a site called "Rocknest" in October and November 2012. The center of the scene, looking eastward from Rocknest, includes the Point Lake area. After the component images for this scene were taken, Curiosity drove 83 feet (25.3 meters) on Nov. 18 from Rocknest to Point Lake. From Point Lake, the Mastcam is taking images for another detailed panoramic view of the area further east to help researchers identify candidate targets for the rover's first drilling into a rock. The image has been white-balanced to show what the rocks and soils in it would look like if they were on Earth.

(Left photo) This view of a Martian rock called "Rocknest 3" combines four images taken by the right-eye camera of the Mastcam instrument, which has a telephoto, 100-millimeter-focal-length lens. Rocknest 3 is a rock approximately 15 inches long and four inches tall, next to the "Rocknest" patch of windblown dust and sand where Curiosity scooped and analyzed soil samples. The image has been white-balanced to show what the rock would look like if it were on Earth.

Image Credits: NASA/JPL-Caltech/Malin Space Science Systems

# Stennis companies earn business awards

Three companies at Stennis Space Center have received 2012 Small Business Industry Awards for achieving or exceeding small business goals.

Each year, the NASA Office of Small Business Programs recognizes companies who support NASA small business goals. Stennis companies were recognized in three categories.

The 2012 Small Business Prime Contractor of the Year was A<sup>2</sup>Research Joint Venture, the laboratory service contractor at Stennis.

The 2012 Large Business Prime Contractor was Lockheed Martin, which provides test operations support at Stennis.

One of Lockheed Martin's subcontractors, GHG Corp., a service disabled veteran-owned small business, received the 2012 Small Business Subcontractor of the Year.

The three will compete against recipients from other centers for agencywide awards to be announced at the Small Business Symposium and Award Ceremony in Washington, D.C., in April.



(Above photo) Susan Sprouse (l to r), GHG Corp. human resources representative; Joe Willhelm, GHG Corp. manager of engineering services; Rick Gilbrech, Stennis director.

(Below right photo) Autumn Sellars (l to r), A<sup>2</sup>Research president; Al Watkins, A<sup>2</sup>Research project manager; Allen Hines, vice president of strategic operations for Alutiiq, an A<sup>2</sup>Research joint venture partner; Gilbrech.

(Below left photo) Stennis Small Business specialist Michelle Stracener; Lockheed Martin Test Operations Contract Program Director Nan Hardin; Gilbrech.



## Stennis 2012 Combined Federal Campaign

**Goal – \$196,300**

**To-date – \$199,570**

**(101.7% of goal)**

# Stennis enjoys year marked by accomplishments

The choice of a theme earlier this fall to summarize the work of 2012 at Stennis Space Center was an easy – and fitting – one.

“It really was ‘Our Year to Shine,’” Stennis Director Rick Gilbrech said of the theme chosen for the 2012 Gala event celebrating the facility’s 51st year. “This was a year of tremendous accomplishment for the center. There were a number of historic firsts, and in so many areas, the Stennis team proved its commitment to excellence and provided invaluable support to the space and Earth science missions of NASA.”

The list of historic and singular achievements for the nation’s largest rocket engine test facility is long. Heading into and during 2012, Stennis:

- Followed up its ranking in 2011 as one of the very best places to work in government by maintaining the spot in the 2012 survey of federal employees. NASA overall ranked at top of large agency list. **(See Page 1)**
- Concluded the first round of J-2X testing. During the 10-test series, the next-generation J-2X achieved more quickly than any rocket engine in U.S. history a full flight-duration test of 500 seconds.
- Opened the 72,000-square-foot INFINITY Science Center as a NASA visitors center, attracting hundreds of visitors each month.
- For the first time ever, received NASA’s Small Business Administrator’s Cup Award in recognition of its stellar small business program.
- Conducted a record-breaking 1,150-second test of the J-2X powerpack on the A-1 Test Stand on June 8. It marked the longest-duration test ever conducted in the A Test Complex. The record stood for a little more than six weeks, with NASA engineers surpassing it on July 24 with a 1,350-second test of the same powerpack.
- Collected a pair of prestigious Telly Awards in motivational and recruitment categories for an education video encouraging students to consider careers in science- and space-related fields.
- Ranked as the top subcomponent agency of innovation in an analysis released by the Partnership for Public Service group. NASA ranked as the top large agency of innovation.
- Celebrated a historic day Aug. 16 with the first test of a J-2X rocket engine conducted by a female engineer, the first two large-engine tests conducted simultaneously



Stennis Director Rick Gilbrech (right) shakes hands with outgoing Director Patrick Scheuermann after the Sept. 25 announcement of the change in center leadership. Scheuermann left Stennis to serve as director at Marshall Space Flight Center in Huntsville, Ala. Gilbrech was named to a second stint as Stennis director, having served in that role in 2006-7.

by Stennis teams and the first instance of two female engineers conducting tests on the same day.

- Welcomed Rick Gilbrech as center director succeeding Patrick Scheuermann, who was named director of Marshall Space Flight Center in Huntsville, Ala.
- Supported commercial space flight efforts by launching a series of tests for Blue Origin, which is partnering with NASA to develop a commercial vehicle that can carry crew members into space. Stennis continues to test engines for other commercial space efforts as well.
- Continued frontline Earth science work. During Hurricane Isaac, a pair of DRIFTER monitoring buoys developed by Stennis transmitted valuable information that will enable scientists to calculate how storm surge affected levels of fresh and salt water in key areas. Also, as the year drew to a close, it was announced the ForWarn forest monitoring tool developed by Stennis and other partners has been selected to receive a prestigious technology transfer award. **(See Page 12)**
- Recorded a historic Nov. 5 week of testing in the E Test Complex. In a three-day period, NASA engineers conducted 27 tests on three different rocket engines/



Engineers at Stennis Space Center conducted a test of an Aerojet AJ26 engine on June 25, continuing the agency’s partnership support as Orbital Sciences Corporation prepares to provide commercial cargo missions to the International Space Station. An Orbital, Aerojet and NASA team conducted the successful test of the AJ26 engine. Orbital is a partner in NASA’s ongoing Commercial Orbital Transportation Services program to help commercial partners develop and demonstrate cargo space transportation capabilities.

components and on three different test stands. These included tests on all three test stands during a 24-hour period Nov. 6-7 and during a nine-hour period Nov. 8.

- Completed a series of tests on the J-2X powerpack assembly, a key component of the next-generation rocket engine that will help power NASA’s new Space Launch System. **(See Page 3)**

Gilbrech praised the Stennis team for the year of accomplishment. “It all was made possible by the dedicated workforce here at Stennis and through the tremendous support of our surrounding communities and of our elected officials at all levels of government,” he said.

Heading into 2013, Stennis remains on the frontline of future space exploration. Tests on the J-2X engine are set to resume in February on the A-2 Test Stand. Once modifications of the A-1 Test Stand are complete, the engine will undergo gimbal testing, ensuring it will operate suitably as it is rotated for proper trajectory. Also, as development of NASA’s new Space Launch System proceeds, vehicle stages will be tested on the B-2 Test Stand at Stennis.

At the same time, Stennis continues testing the Aerojet AJ26

engine for Orbital Sciences Corporation, the BE-3 engine thrust chamber for Blue Origin and the Project Morpheus engine for NASA. In 2013, it also plans to activate the new A-3 Test Stand, which will allow testing of engines at simulated altitudes up to 100,000 feet.

Frontline work continues in the Stennis Applied Science and Technology Project Office as well, especially through leadership in NASA’s Gulf of Mexico Initiative. The Stennis Education Office remains focused on STEM (science, technology, engineering and mathematics) activities and initiatives, including through its support of FIRST (For Inspiration and Recognition of Science and Technology) robotics competitions and other school-based efforts.

In addition, ongoing outreach efforts throughout the surrounding region focus on sharing the Stennis story, especially its historic role in the American space program.

“The reputation of Stennis is well-established and continues to grow as the center excels in its assigned missions,” Gilbrech said. “If 2012 was ‘Our Year to Shine,’ I am confident we will shine even brighter as NASA continues its exciting mission to take humans beyond low-Earth orbit.”



(Top left photo) Student Shania Etheridge from Benjamin E. Mays Preparatory School in New Orleans enjoys a hands-on experience at the INFINITY Science Center facility May 7. The Louisiana student assisted in the first harvest of lettuce from the Controlled Environment Agriculture unit at INFINITY. The exhibit grows trays of butterhead lettuce, using an aeroponic process that involves no soil and advance LED lighting techniques.

(Top middle photo) Clare Johnston, 10, and Eden Landis, 3, stare in wonder at the moon rock on display at the INFINITY Science Center facility. The children toured INFINITY exhibits during ribbon-cutting activities for the facility April 11.

(Top right photo) Space shuttle Endeavour embarked on the first leg of its final flight Sept. 19, departing Kennedy Space Center in Florida and making early-morning flyover visits to Stennis Space Center in Mississippi and nearby Michoud Assembly Facility in Louisiana. The shuttle flew atop the 747 Shuttle Carrier Aircraft, headed west to go on display at the California Science Center in Los Angeles.

(Bottom left photo) NASA's test of the J-2X rocket engine on the A-2 Test Stand at Stennis Space Center on July 13 was picture perfect in more ways than one. Not only did the test provide a breathtaking view from atop the nearby A-1 Test Stand, and with the center's B-1/B-2 Test Stand in the background, but it achieved its target of 550 seconds. The J-2X is being developed by Pratt & Whitney Rocketdyne for NASA's Marshall Space Flight Center in Huntsville, Ala.

(Bottom right photo) RS-25D rocket engine No. 2045 is unpacked at Stennis Space Center on Jan. 17 for future testing and use on NASA's new Space Launch System. A total of 15 RS-25 engines was delivered from NASA's Kennedy Space Center in Florida to Stennis, where they will be stored until certification testing begins. The engines will power the core stage of the new launch system that will carry humans on missions beyond low-Earth orbit.



# ForWarn wins technology transfer award

The ForWarn forest monitoring and assessment tool developed by NASA Stennis Space Center's Applied Science & Technology Project Office and other federal and university partners has been selected to receive a prestigious technology transfer award.

The Federal Laboratory Consortium (FLC) for Technology Transfer announced Nov. 26 that the ForWarn early warning system for forest threats will receive the 2013 FLC Interagency Partnership Award. One of the organization's highest honors, the award recognizes the efforts of laboratory employees from at least two different agencies who have collaboratively accomplished outstanding work in the process of transferring a technology.

ForWarn team members will be honored at the 2013 FLC Awards program on April 25, 2013, in Westminster, Colo.

"The ForWarn project is an example of government working very well in bringing together the unique expertise and tools from each agency in this partnership in such a synergistic way," said Ramona Travis, Stennis chief technologist. "The technology transfer result is a powerfully effective system that benefits those interested in monitoring changes in our nation's forest health and conditions, from federal, state or local governments down to private forest companies and individual landowners."

The U.S. Department of Agriculture, in partnership with Stennis Space Center, released ForWarn earlier this year as a satellite-based monitoring and assessment tool for tracking changes in forest vegetation across the country, and for providing a strategic, national overview of potential forest disturbances and environmental threats. The tool initially was developed through collaborative efforts led by the USDA Forest Service's Eastern Forest and Western Wildland Environmental Threat Assessment Centers. It involves significant, timely contributions from NASA and its Stennis Space Center, the Department of Energy, and the U.S. Geological Survey.

ForWarn is designed to help natural resource managers rapidly detect, identify and respond to unexpected changes in the nation's forests by using web-based tools for visualizing regional forest change. The satellite-based

monitoring and assessment tool recognizes and tracks potential forest disturbances caused by insects, diseases, wildfires, extreme weather, or other natural or human-caused events. The tool complements and focuses efforts of existing forest monitoring programs and results in potential time and cost savings.

The prototype version of ForWarn has successfully operated since January 2010 and uses NASA Moderate Resolution Imaging Spectroradiometer (MODIS) satellite imagery to recognize and track changes in vegetation across the nation, providing a near-real-time view of apparent forest disturbance and recovery. ForWarn uses a web-based map tool, the Forest Change

Assessment Viewer, in conjunction with NASA's MODIS data, to provide a new coast-to-coast snapshot of forests in the U.S. every eight days, allowing endusers to interpret forest change products and create geographically relevant maps. The system lets users explore and share recent and archived forest disturbance maps.

"ForWarn's forest change products provide a new, much-needed means to view, track and assess regionally evident forest disturbances from multiple causal agents," said Joe Spruce, lead scientist for project work performed at Stennis Space Center. "Forest health specialists across the country can now view nationwide current forest disturbance monitoring products that are refreshed and posted to ForWarn's online Forest Change Assessment Viewer every eight days."

Bill Graham in the Stennis Applied Science and Technology Project Office echoed the assessment. "NASA's Applied Science Project Office at Stennis Space Center worked in partnership with the U.S. Forest Service to create and tailor a forest disturbance early warning system that answers the forest managers' requirements and provides a link between the nation's investment in Earth science and forest managers and decision makers," he said. "It's a prestigious honor to receive the Federal Laboratory Consortium Interagency Partnership Award as recognition."

Earlier this fall, the USDA Forest Service's Southern Research Station also recognized the ForWarn system team, selecting it to receive the 2012 Director's Science Delivery Award.



# Stennis hosts celebration of Apollo 17 mission

Stennis Space Center hosted two days of activities Dec. 7-8 to celebrate the 40th anniversary of the Apollo 17 flight to the moon, the final mission of America's manned lunar effort.

Young visitors to the INFINITY Science Center were able to learn about the historic mission – the sixth in three-and-one-half years to carry humans to the surface of the moon – and to participate in hands-on activities. Apollo 17 launched Dec. 7, 1972, the first nighttime launch of a manned U.S. mission. Commander Eugene Cernan and lunar module Pilot Harrison Schmitt spent three days on the surface of the moon before returning to Earth with command module Pilot Ronald Evans.

During the anniversary event, INFINITY visitors were able to construct lunar lander models and build and launch straw rockets, among other activities.



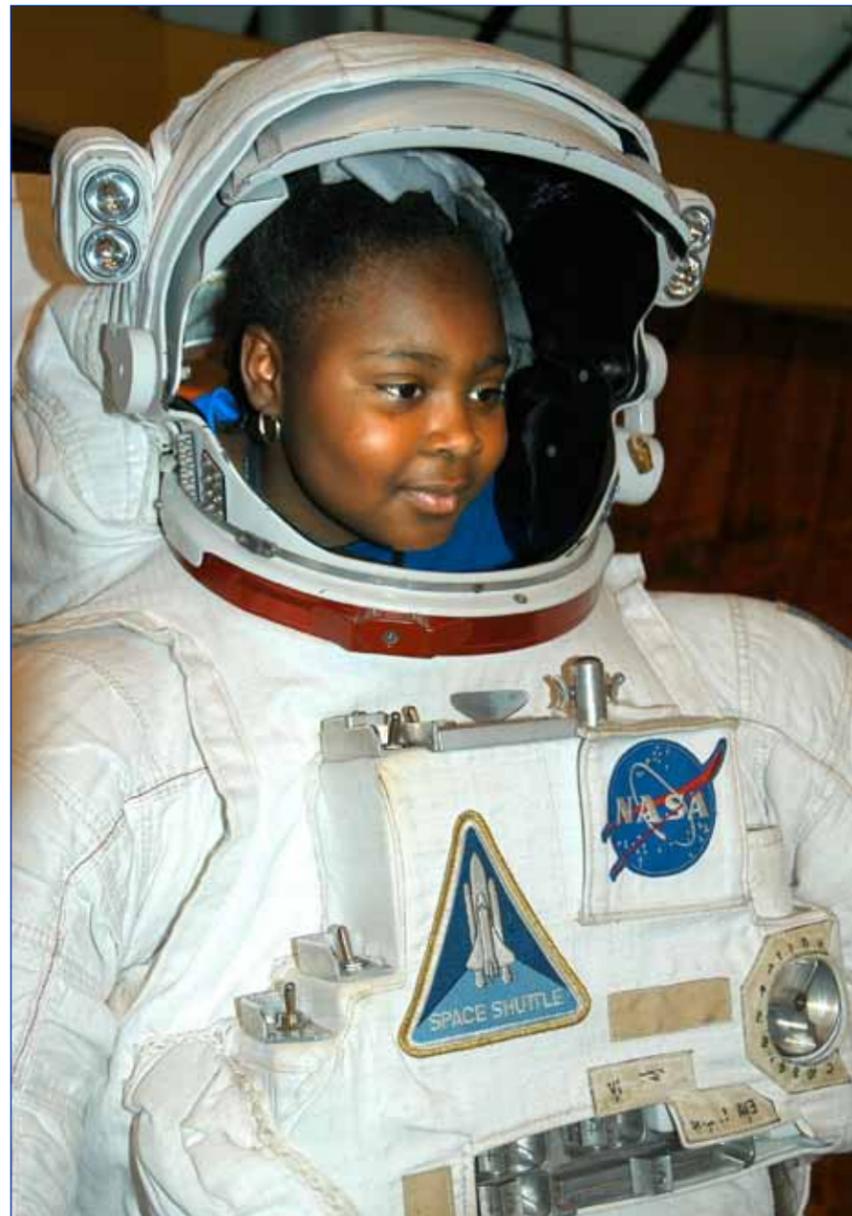
(Left photo) Ariana Lyons from Escatawpa Elementary School in Moss Point experiences what it feels like to view the world out of a spacesuit.

(Top photo) Young INFINITY visitors enjoy a Living and Working in Space experiment presentation during Apollo 17 anniversary activities.

(Top right photo) Kiya Franklin from Escatawpa Elementary School enjoys a construction activity during her visit to INFINITY Science Center on Dec. 7. Stennis hosted two days of activities to celebrate the 40th anniversary of the Apollo 17 mission to the moon.

(Bottom left photo) Matthew Lee from Escatawpa Elementary School builds a lunar lander model during an INFINITY Science Center activity.

(Bottom right photo) Escatawpa Elementary School student Danisha Dillon learns about NASA at the Home & City interactive exhibit.



# Book chronicles Stennis history

*Note: For more than 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's Lagniappe highlights a moment in the history of the south Mississippi rocket engine test center.*

**W**ay Station to Space, the documented history of the Stennis Space Center, was published 15 years ago this month by NASA Headquarters as part of its Special Publications History Series.

The official history was written by veteran Stennis employee Mack Herring. It took six years to compile, write and edit the 486-page book. Herring said about three years went into the planning and research, with an additional three years spent in writing and editing.

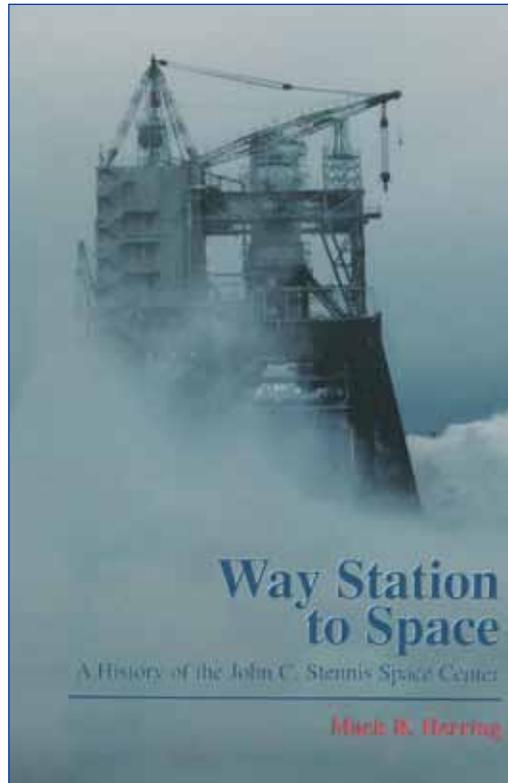
In the book, the first 36 years of the center's rich history is illustrated with 48 classic photos. The book is based on more than 100 interviews with NASA and contractor employees, politicians, community leaders and other observers. The foreword was written by then-NASA Administrator Daniel Goldin. The book is documented by more than 1,000 references and notes. At the time of publication, Herring said *Way Station to Space* represents a "team effort" by numerous current and retired Stennis personnel.

Before publication, the history was peer reviewed by Dr. Roger Launius, NASA Headquarters chief historian; Dr. Charles Bolton, head of the Department of Oral History and Cultural Heritage at the University of Southern Mississippi; and Dr. John Ray Skates, a noted Mississippi military historian. A number of knowledgeable Stennis associates of that time – including Roy Estess, director; Jerry Hlass, former director; Boyce Mix, director of propulsion test; Myron Webb, public affairs officer; and Jack Rogers, former center operations director – read the book for technical accuracy.

Herring praised the work of Virginia Butler, a USM graduate student with Stennis' History Office, who assisted with research and initial editing, and NASA News Chief Lane Cooksey, who served as the book's local editor. Herring said he hoped that the book would be useful in illustrating "how we got to where we are" and that employees would use it as a reference source and maybe "learn from the past."

The cover, like the book itself, was a team effort with Graham Golden of Johnson Controls as lead artist. The artwork was taken

from an early afternoon photo of a space shuttle main engine test firing on the A-1 Test Stand, captured by the camera of Stennis employee Charles Jones.



## Stennis lights annual holiday tree

Stennis Space Center Director Rick Gilbrech and other NASA employees celebrated the lighting of the center's annual holiday tree in the Roy S. Estess Building on Nov. 26. Participants enjoyed caroling and refreshments during the annual lighting ceremony.



## Office of Diversity and Equal Opportunity

# Celebrate the happy and joyous season

*A little smile, a word of cheer  
A bit of love from someone near  
A little gift from one held dear  
Best wishes for the coming year.*

**John Greenleaf Whittier**

**T**here are many different religions and forms of celebration around the world. We are as diverse in how we celebrate as we are in our cultural beliefs and attitudes that we each seek out in our daily lives.

While the fall season tends to kick off a season of celebration into the winter months, just remember, however we celebrate during the different seasons in the year, we all seek to find joy and peace while doing so.

Dec. 25, Christmas Day, has been a federal holiday in the United States since 1870.

Christmas is both a sacred religious holiday and a worldwide cultural and commercial phenomenon. For more than 2,000 years, people have been observing Christmas Day with traditions and practices that are both religious and secular in nature.

Christians celebrate Christmas Day as the anniversary of the birth of Jesus of Nazareth, a spiritual leader whose teachings form the basis of their religion. Popular customs include exchanging gifts, decorating Christmas trees, sharing meals with family and friends and waiting for Santa Claus to arrive.

Hanukkah, also known as the Festival of Lights or Festival of Rededication, is an eight-day Jewish holiday beginning on the 25th day of Kislev, which can occur in very late November, or throughout December. When Hanukkah begins in the last week of December, it continues into the following January. The festival is observed in Jewish homes by the kindling of lights on each of the festival's eight nights, one on the first night, two on the second, and so on.

The holiday was called Hanukkah, meaning "dedication," because it marks the rededication of the temple after its desecration under Antiochus IV. Spiritually, Hanukkah commemorates the Miracle of the Oil. According to the

Talmud, at the rededication of the temple in Jerusalem following the victory of the Maccabees over the Seleucid Empire, there was only enough consecrated olive oil to fuel the eternal flame in the temple for one day. Miraculously, the oil burned for eight days – which was the length of time it took to press, prepare and consecrate new oil.

Eid: Eid ul-Fitr, often abbreviated as simply Eid, sometimes spelled Eid al-Fitr, is an Islamic holiday that marks the end of Ramadan, the month of fasting. Fitr

means "to break the fast" and therefore symbolizes the breaking of the fasting period. This marks the end of Ramadan in the Islamic calendar (lunar) and is celebrated anywhere between the end of one year or the beginning of the next in the Christian calendar, depending on where it falls that particular year.

The Kwanzaa Celebration lasts seven days, from Dec. 26 to Jan. 1. During that time, African-Americans celebrate their African heritage and affirm seven important principles of community and family life. As with most holidays, traditional foods play a central role.

However you wish to celebrate the holidays, the Office of Diversity and Equal Opportunity would like to wish you a happy and joyous season. We would also like to encourage you to stop by the ODEO bulletin board in the Building 1100 cafeteria hallway to express what this season means to you. There are pens and notepaper available. Please write your message and post it to board.



## Hail & Farewell

### NASA welcomes the following:

Mary Clark	Student Trainee/Human Resources Office of Human Capital
Larry LaFrance	Student Trainee/Procurement Office of Procurement
Alyssa Roberts	Student Trainee/ Accounting & Budget Office of the Chief Financial Officer

# Mississippi teams compete in 2012 *FIRST*<sup>®</sup> LEGO<sup>®</sup> League tournament

Forty-six teams of Mississippi students in grades 5-8 competed in the 2012 *FIRST*<sup>®</sup> (For Inspiration and Recognition of Science and Technology) LEGO<sup>®</sup> League tournament in Hattiesburg on Dec. 1, with a team from Brandon claiming top prize.

The Techno Warriors team from Brandon won the most prestigious award of the annual tournament, the Champion's Award. The Techno Warriors is comprised of home school students sponsored by Central Mississippi Robotics. The McComb LEGObots team from Vicksburg placed second. The team is sponsored by Home Educators of Southwest Mississippi. Awards also were presented for mechanical design, programming, innovation and strategy, robot performance, inspiration, teamwork and gracious professionalism.

*FIRST*<sup>®</sup> LEGO<sup>®</sup> League (FLL) is an annual high-energy robotics competition. The focus is on celebrating science and technology through hands-on participation and learning. In partnership with the LEGO<sup>®</sup> Group, students use the MINDSTORMS<sup>™</sup> NXT system to build robots designed to complete particular tasks related to the competition theme.

The theme of this year's competition was "Senior Solutions," focused on identifying problems faced by senior adults and creating innovative solutions to address them.

Stennis Space Center is the primary sponsor of the annual competition, providing mentors and training, as well as competition judges and personnel. For information about FLL, visit: [www.firstlegoleague.org](http://www.firstlegoleague.org). To learn about the Robotics Alliance of Mississippi, visit: [www.ramrobots.org](http://www.ramrobots.org).



(Top photos) Mississippi students monitor performance of their robots during the 2012 *FIRST*<sup>®</sup> LEGO<sup>®</sup> League Mississippi Championship Tournament, held Dec. 1 in Hattiesburg. The competition drew 46 teams from across Mississippi. In addition to competing with robots, students presented research on this year's "Senior Solutions" theme, which focused on addressing problems faced by senior adults.

(Bottom photos) Observers cheer on student teams during the annual *FIRST*<sup>®</sup> LEGO<sup>®</sup> League tournament. FLL is an annual high-energy robotics competition for children ages 9-14. The focus is on celebrating science and technology through hands-on participation and learning. Stennis Space Center is the primary sponsor for the annual Mississippi competition.