

## NASA, Stennis cited as best places to work

For the second year in a row, NASA ranks as the best place to work in the federal government among large agencies, based on the eighth annual employee survey conducted by the Partnership for Public Service. Stennis Space Center ranks second in the federal subcomponent category for a third consecutive year and continues to rank as the best place to work in NASA.

“NASA’s selection as the Best Place to Work in government for the second year in a row is a testament to the excellence of our workforce and their determination to maintain America’s leadership in space exploration,” NASA Administrator Charles Bolden said.

“In a year of budget uncertainty and a government shutdown, NASA employees never missed a beat. In the tradition of the ‘can do’ spirit that has enabled us for more than 50 years to turn science fiction into science fact, they have consistently rolled up their sleeves and worked hard at achieving our major goals which include leading the expansion of a domestic commercial space industry for low-Earth orbit transportation, and developing a heavy lift launch capability to take humans farther than they have ever explored – to an asteroid in the next decade and to Mars by the 2030s.

“Our employees are also focused on continuing our ambitious programs of aeronautics modernization, technological innovation and scientific and planetary exploration to achieve new breakthroughs in space and to



Rick Gilbrech, Stennis Space Center director, and Dorsie Jones, manager of the Stennis Office of Human Capital, display the Best Places to Work plaque received during a Dec. 18 ceremony in Washington. Stennis ranked second among federal agency subcomponents in the annual workplace survey for the third year in a row.

bring critical benefits to Earth. “I am honored and proud to lead such a dedicated team of employees. They are what make NASA the Best Place to Work in Government.”

Responding to news of Stennis’ ranking in the annual survey, Center Director Rick Gilbrech said: “I am pleased that the agency and Stennis have once again ranked so high in this year’s Employee Viewpoint Survey. I’m thankful to be able to work with such phenomenal individuals across NASA and continue to be

especially blessed with the privilege of leading the Stennis family.”

The Best Places to Work rankings include 371 federal agencies and agency subcomponents, which represent 97 percent of the 2.1 million person federal workforce. Agencies are ranked within one of four categories: large agency, mid-size agency, small agency and federal subcomponent.

For the complete list of 2013 Best Places to Work rankings, visit: <http://bestplacestowork.org>.

*“Through the highs and lows,  
the Stennis team has remained  
diligent and focused.”*

From the desk of

**Jerry Cook**

Deputy Director, Stennis Space Center



**A**s the year begins to wind down, I find myself wondering, “Where did the time go?” It seems like only yesterday I was getting settled in as deputy director. In the ensuing 12 months, I have joined the Stennis family in a year of extremes, from a 16-day furlough and the threat of a tropical storm to mourning the loss of family and friends to celebrating retirements and welcoming new team members.

Through the highs and lows, the Stennis team has remained diligent and focused. We have been instrumental in the success of Orbital Sciences Corporation as another commercial cargo supplier to the International Space Station (ISS). Stennis team members enabled testing of four Aerojet Rocketdyne AJ26 engines in the E Test Complex to power Orbital flights, including its Antares cargo demonstration flight to the ISS in September and its first full mission this month.

A key commercial partnership was forged with Space Exploration Technologies Corp. (SpaceX) to test major components of its Raptor engine thruster on the E-2 Test Stand. Stennis continued a relationship with Aerojet Rocketdyne with six successful tests of RS-68 engines on the B-1 Test Stand this year. Partnering with the Johnson Space Center, Stennis also conducted 47 tests of the Morpheus engine that eventually may power a lander for deep-space exploration.

The test team for the J-2X rocket engine celebrated a successful year with hot firings on the A-1 and A-2 test stands. A total of 17 tests provided over 6,200 seconds of data. These included the first-ever gimbal, or pivot, tests on the engine. Work now is proceeding to modify the A-1 stand to test RS-25 engines for NASA’s Space Launch System (SLS). This will be the first hot-fire test of the RS-25 engine, the former space shuttle main engine, since July 27, 2009. Modi-

fications of the B-2 Test Stand also are ongoing to prepare for testing the largest rocket stage ever tested at Stennis. The SLS core stage will tower over 212 feet and require the first-ever firing of a cluster of four RS-25 engines.

The Stennis Applied Science and Technology Project Office had another busy year with projects making significant contributions in multiple areas. The multi-agency ForWarn forest monitoring tool continues to impress. It has received five awards and is nominated for the prestigious William T. Pecora Award, recognizing outstanding contributions by individuals or groups toward understanding Earth by means of remote sensing. Work also continues to progress on oil slick detection using NASA active and passive sensors.

The Stennis federal city continues to thrive. In 2013, Stennis added new tenants, and current tenants continued to expand their capabilities, as seen in activation of a second jet engine test position for Rolls-Royce. The INFINITY Science Center is expanding with new hardware exhibits and a 7.2-mile Heritage Trail. Stennis continues to inspire the next generation of explorers through events like Pathway2Possibilities, attended by over 6,000 Gulf Coast students; Stennis Family Day at INFINITY; and annual Astro Camps.

Stennis also has continued to share blessings with others. The center food drive totaled over 8,115 pounds of goods, and the 2013 Combined Federal Campaign has exceeded its sitewide goal. As I reflect on this first year, I could not agree more that Stennis is truly the best place to work in NASA. Have a safe and happy holiday season.

*Lagniappe* is published monthly by the Office of Communications at NASA’s John C. Stennis Space Center.

Access monthly copies at: [www.nasa.gov/centers/stennis/news/publications/index.html](http://www.nasa.gov/centers/stennis/news/publications/index.html)

Contact info – (phone) 228-688-3749; (email) [ssc-pao@nasa.gov](mailto:ssc-pao@nasa.gov); (mail) NASA OFFICE OF COMMUNICATIONS,

Attn: LAGNIAPPE, Mail code IA00, Building 1100 Room 304, Stennis Space Center, MS 39529

Managing Editor – Rebecca Strecker

Editor – Lacy Thompson

Staff Photographer – Danny Nowlin

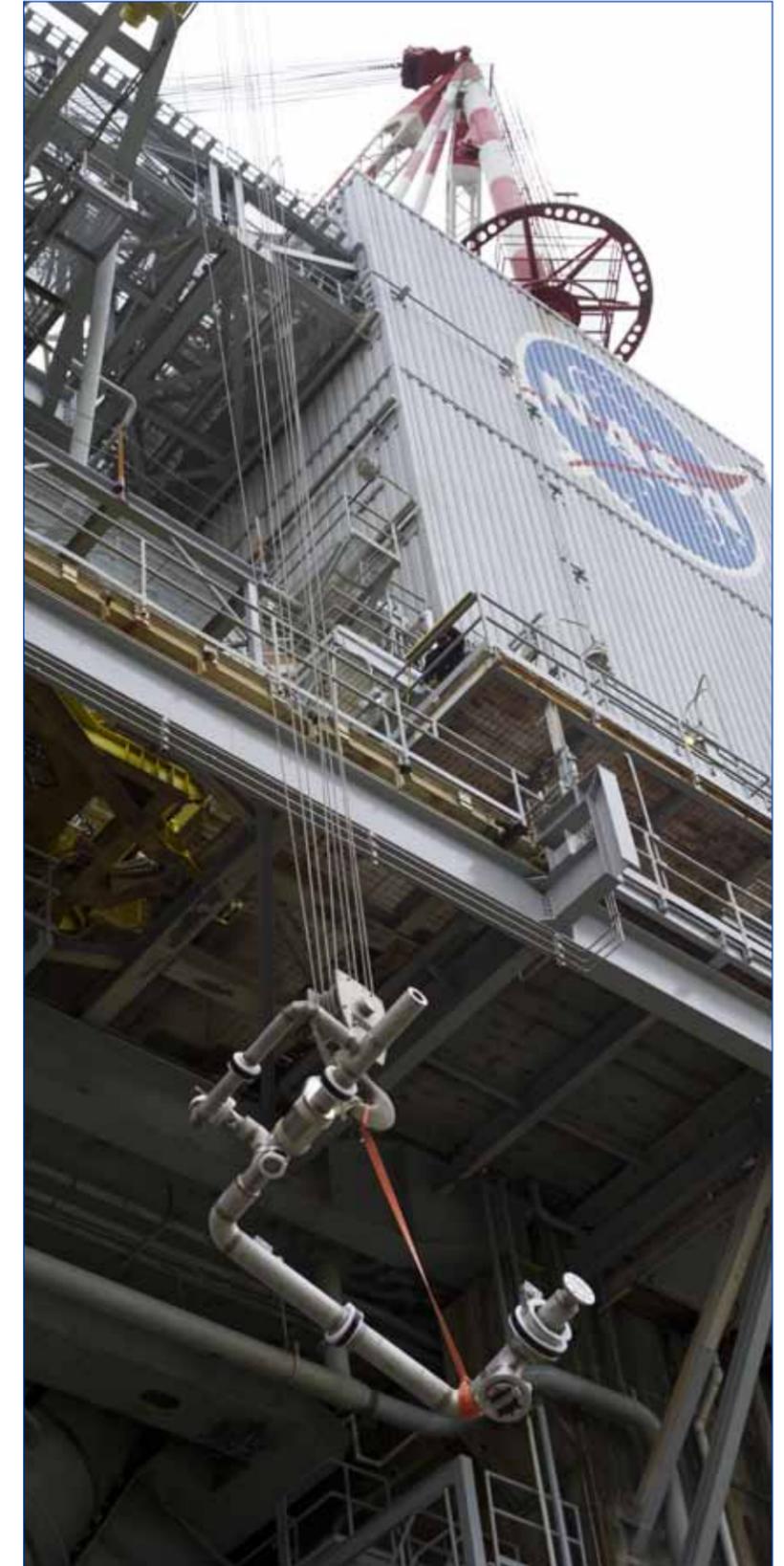


## FULFILLING NASA'S EXPLORATION MISSION

# NASA continues preparation for RS-25 engine testing on A-1 Test Stand

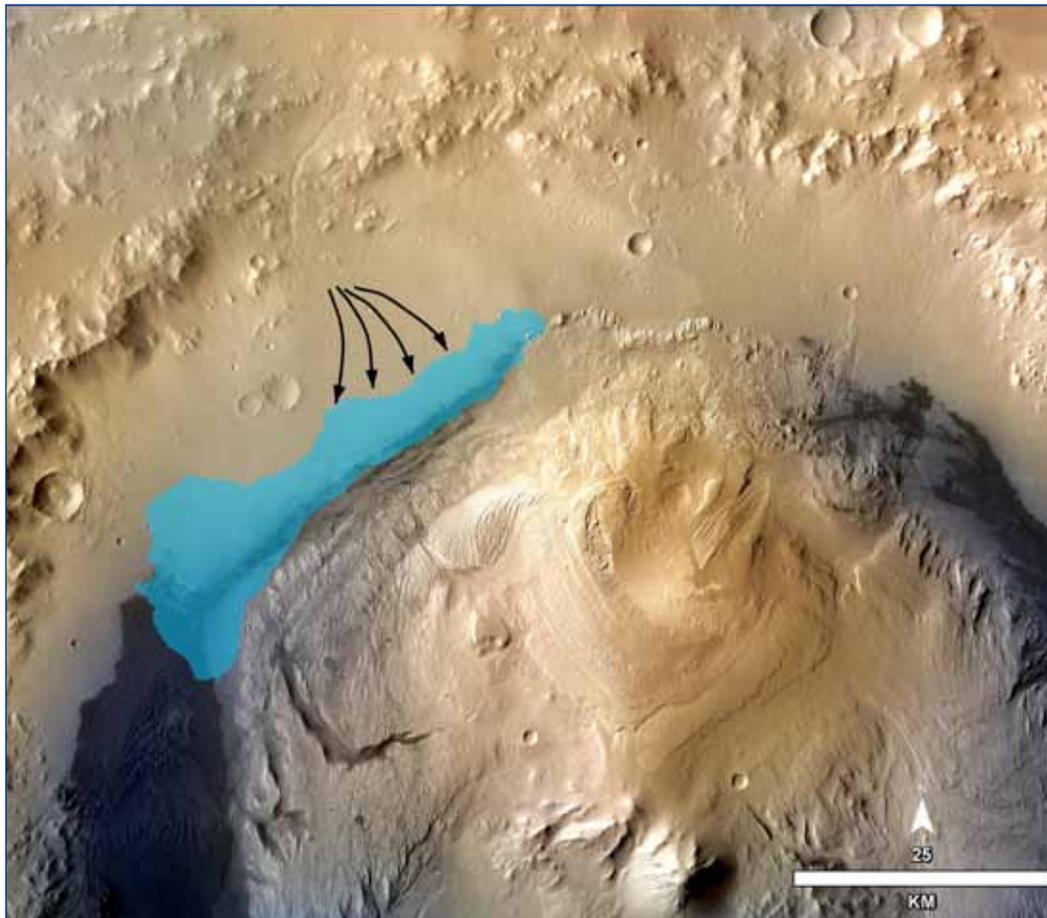


Portions of liquid oxygen and liquid hydrogen piping is lifted into place in late November and early December on the A-1 Test Stand at Stennis Space Center in preparation for testing RS-25 rocket engines next year. Installation of the piping continues through December, followed by installation of a new thrust frame adapter and additional stand components. Modification work began in force following completion of a gimbal, or pivot, test series on the J-2X rocket engine on the A-1 stand in early September. Piping and stand components used for that testing were removed to prepare for installation of items that meet specifications needed for RS-25 engine testing. Formerly used as space shuttle main engines, RS-25 engines will power the core stage of NASA's new Space Launch System (SLS). Testing on the A-1 Test Stand will focus on rating the engines to operate at the higher propellant inlet pressure needed on the SLS. Built in the 1960s, the stand initially tested engines for NASA's Apollo Program that carried humans to the moon. It also was used to test space shuttle main engines that powered space shuttle missions. Modification of the A-1 Test Stand is ongoing, with activation scheduled for spring 2014 and testing of RS-25 engines to begin early to mid-summer.



## FULFILLING NASA'S EXPLORATION MISSION

## Curiosity finds evidence of ancient Mars lake



NASA's Curiosity rover has found evidence of an ancient, primarily freshwater lake on Mars that could have sustained microbial life billions of years ago, separate papers in the journal *Science* indicated early this month. This mosaic of images (l) from Curiosity's Mast Camera (Mastcam) shows geological members of the Yellowknife Bay formation. The scene has the Sheepbed mudstone in the foreground and rises up through Gillespie Lake member to the Point Lake outcrop. These rocks record superimposed ancient lake and stream deposits that offered past environmental conditions favorable for microbial life. Rocks here were exposed about 70 million years ago by removal of overlying layers due to erosion by the wind. The scene is a portion of a 111-image mosaic acquired Dec. 24, 2012). Image Credit: NASA/JPL-Caltech/MSSS

## NASA in the News

### NASA helps locate Earth's coldest spot

What is the coldest place on Earth? It is a high ridge in Antarctica on the East Antarctic Plateau where temperatures in several hollows can dip below minus 133.6 degrees Fahrenheit (minus 92 degrees Celsius) on a clear winter night. Scientists made the discovery while analyzing the most detailed global surface temperature maps to date, developed with data from remote sensing satellites, including the new Landsat 8, a joint project of NASA and the U.S. Geological Survey. Researchers analyzed 32 years' worth of data and found temperatures plummeted to record lows dozens of times in clusters of pockets near a high ridge between Dome Argus and Dome Fuji, two summits on the ice sheet known as the East Antarctic Plateau. The new record of minus 136 F (minus 93.2 C) was set Aug. 10, 2010. That is several degrees colder than the previous low of minus 128.6 F (minus 89.2 C), set in 1983 at the Russian Vostok Research Station in East Antarctica. For more information about Landsat, visit: [www.nasa.gov/landsat](http://www.nasa.gov/landsat).

### NASA app shows changing planet

Human activities, a changing climate and natural disasters are rapidly altering the face of the planet. Now, with NASA's Images of Change iPad application, users can get an interactive before-and-after view of these changes. The NASA app presents sets of images of places around the world that have changed dramatically. Some of the locations have suffered a disaster, such as a fire or tsunami, or indicate the effects of human activities, such as dam building or urban growth. Others document impacts of climate change, such as persistent drought and receding glaciers. The Images of Change app makes NASA climate change resources, images and interactive tools more accessible to citizens and decision makers, a key aspect of President Obama's Climate Action Plan. The app can be accessed as a free download at: <http://go.nasa.gov/1bE3osn>. For more on NASA and climate science, visit: <http://climate.nasa.gov>.

For NASA news releases, visit: [www.nasa.gov/news/releases/latest/index.html](http://www.nasa.gov/news/releases/latest/index.html).

# 2013 review shows central role Stennis plays in space program

A review of 2013 shows clearly the central role Stennis Space Center is playing in the nation's space exploration program.

Through a range of engine test programs, NASA's south Mississippi center solidified its place as the nation's largest rocket engine test site and as the proving grounds for the engines to power space flights of today and tomorrow.

"It has been a very busy year for Stennis Space Center," Director Rick Gilbrech acknowledged. "Our engine test teams are playing instrumental roles in helping NASA move forward in reaching its commercial and deep-space exploration goals. This is an incredible time for the nation's space program, and everyone at Stennis is excited about contributing to its success."

Engine testing ran the gamut for Stennis engineers in 2013.

On the commercial side, Stennis engineers teamed with Aerojet Rocketdyne and Orbital Sciences Corporation engineers to test AJ26 rocket engines on the E-1 Test Stand. A pair of AJ26 engines will power Orbital's Antares spacecraft on commercial cargo flights to the International Space Station. The company already has completed test and demonstration flights, with the first of its eight scheduled NASA Commercial Resupply Services missions planned for this month.

Stennis continued to host Aerojet Rocketdyne testing of the RS-68 engine on the B-1 Test Stand. The RS-68 is the largest hydrogen-fueled engine in the world and is used to power Delta IV launches for commercial satellite deployment and the Department of Defense.

In addition, NASA has partnered with Space Exploration Technologies Corp. (SpaceX) to test its liquid-methane/liquid-oxygen Raptor engine thruster, beginning in 2014.

Stennis teams also continued testing the next-generation J-2X engine throughout 2013, collecting critical data to use in further development of that engine and future testing of the RS-25 engines that will power the core stage of NASA's new Space Launch System (SLS).

NASA is scheduled to begin testing the RS-25 engine on the A-1 Test Stand at Stennis next summer.

Meanwhile, renovations continue on the B-2 Test Stand for testing the SLS core stage, which will involve firing four RS-25 engines simultaneously. The project echoes tests performed on Saturn V rocket stages during the Apollo Program.

In another 2013 effort, Stennis supported testing of the liquid-methane/liquid-oxygen HD4B engine for NASA's prototype Morpheus lander on the E-3 Test Stand. Morpheus is being developed as a vertical takeoff and landing vehicle that could evolve to carry a variety of robotic and scientific payloads to such destinations as Mars or asteroids.

"Without a doubt, the work under way and upcoming at Stennis is on the cutting edge of space exploration efforts," Gilbrech emphasized. "We're helping to enable the future."

On another front, during 2013, the Stennis Applied Science and Technology Project Office continued to provide critical scientific research for the Gulf of Mexico region, especially related to coastal preservation and restoration.

The site also conducted ongoing outreach efforts to promote science, technology, engineering and mathematics to students and the general public. Efforts included visits to the Mississippi Children's Museum and other sites, as well as hosting Astro Camp and other student-focused activities.

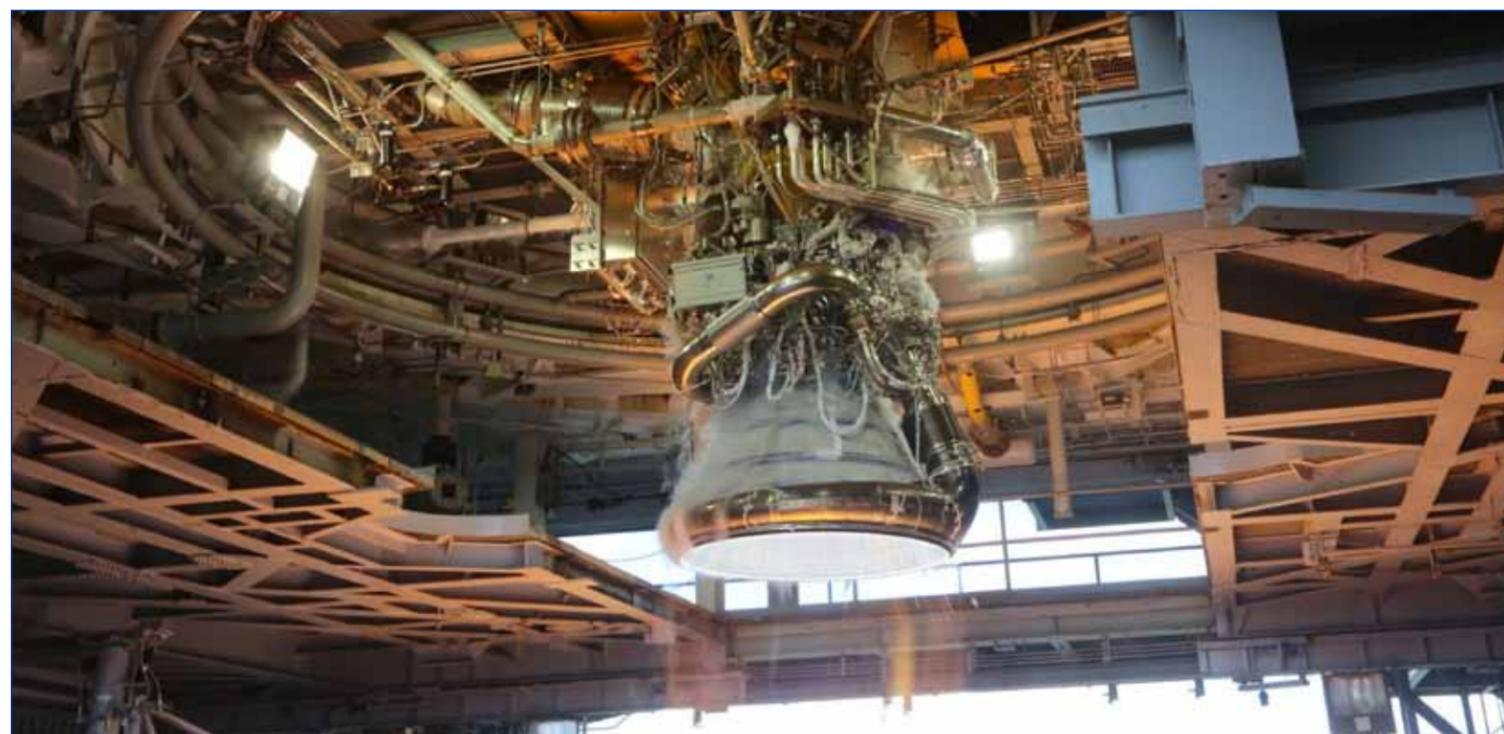
Stennis hosted top NASA officials throughout the year as well, including Administrator Charles Bolden and then-Deputy Administrator Lori Garver. The site also began the year with a new leader of its own with arrival of Stennis Deputy Director Jerry Cook.

As a new year nears, all systems are go at Stennis Space Center. "Two years ago, we celebrated 50 years of powering space dreams, and we continue to play that role for the nation," Gilbrech noted. "In the 1960s, it was said that you had to go through Hancock County, Mississippi, to get to the moon. Today, the road to space still leads through Stennis."



(Top photo) NASA conducts a test of the J-2X rocket engine on the A-2 Test Stand at Stennis Space Center on Dec. 18. Ongoing tests are providing critical information on engine and test stand capabilities. The J-2X test series is scheduled to continue into the spring of 2014.

(Bottom photo) A closeup shot of the J-2X rocket engine No. 10002 shows how it was gimbaled during a June 14 test on the A-1 Test Stand at Stennis Space Center. A summer series of gimbal tests was conducted on the advanced rocket engine.





(Top left photo) Young students participate in a hands-on activity during one of several Astro Camp sessions sponsored by Stennis Space Center at INFINITY Science Center in June and July.

(Top right photo) Stennis Space Center Director Rick Gilbrech addresses community leaders during a briefing on the state of the NASA center April 2. Community leaders gathered at the INFINITY Science Center to hear updates about the ongoing work and future of the federal city.

(Bottom left photo) NASA engineers conduct a test of the liquid-oxygen/liquid-methane Morpheus lander engine HD4B on the E-3 Test Stand at Stennis Space Center during the week of Sept. 9.

(Bottom center photo) NASA Administrator Charles Bolden speaks to Stennis Space Center employees gathered for an all hands session during his visit to the center Oct. 23.

(Bottom right photo) A welder at NASA's Stennis Space Center works on a portion of piping to be installed on the A-1 Test Stand for RS-25 rocket engine testing. NASA is scheduled to begin testing RS-25 engines next spring for use on its new Space Launch System.





(Top left photo) Engineers at Stennis Space Center conduct a hot-fire test of Aerojet Rocketdyne AJ26 engine No. 14 on the E-1 Test Stand on Nov. 19.

(Above photo) The Antares rocket launched by Orbital Sciences Corporation on Sept. 18 for its demonstration mission to the International Space Station was powered by a pair of Aerojet Rocketdyne AJ26 engines tested at Stennis.

(Far left photo) Athlete Johnny Couvillion tosses a flying disc towards a hoop during the 2013 Area III Special Olympics, hosted at Stennis Space Center on March 23.

(Left photo) Astronaut Catherine "Cady" Coleman speaks to Stennis Space Center employees during 2013 Safety & Health Day activities Sept. 11.



## Japan officials visit Stennis

A group of business and economic development officials from Japan tour the A-2 Test Stand during a stop at Stennis Space Center on Nov. 19. The Japanese officials were on the Gulf Coast for a Southeast U.S./Japan Association Conference to promote trade, investment, understanding and friendship between Japan and seven U.S. member states, including Mississippi. They were hosted at Stennis by NASA, Mississippi Development Authority and Mississippi Enterprise for Technology representatives. In addition to a stop at the A-2 Test Stand, the visitors participated in a windshield tour of the center, including the Rolls-Royce jet engine test facility.



## Goal

# \$180,000



## To-date

# \$190,301.06

# (105.7% of goal)

## Stennis celebrates International Space Station anniversary

Randy Galloway, director of the Engineering and Test Directorate at Stennis Space Center, talks about construction of the International Space Station during a Nov. 20 celebration of the orbiting laboratory's 15th anniversary. The Stennis gathering was held the same day the first ISS segment was launched into space in 1998. Since then, the ISS has grown to the size of a football field and has hosted a continuous human presence onboard for 13 consecutive years. Construction of the station represents "the greatest engineering achievement ever completed by humans," Stennis Director Rick Gilbrech said to commemorate the anniversary.



# Stennis companies earn business awards

Three companies at Stennis Space Center have received 2013 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 2013 Small Business Prime Contractor of the Year was Healtheon Inc. of New Orleans, a multiple-award construction contractor at Stennis.

The Large Business Prime Contractor was Jacobs Technology Inc., which holds the Facility Operating Services Contract at Stennis.

A Jacobs subcontractor, Comprehensive Occupational Resources, an occupational healthcare services company, received the Small Business Subcontractor of the Year.

The three will compete against recipients from other centers for agencywide awards.



(Above photo) Rick Gilbrech, Stennis director (r to l); Keith Beck, Jacobs Facility Operating Services Contract general manager; Michelle Stracener, Stennis small business specialist.

(Below left photo) Gilbrech (r to l); Sue Smith, Comprehensive Occupational Resources chief nurse at Stennis Space Center; Major Mittendorf, co-chief operating officer and partner of CORE of Baton Rouge; Stracener.

(Below right photo) Gilbrech (r to l); Jas Walia, president of Healtheon Inc.; Stracener.



## Stennis lights annual holiday tree

Stennis Space Center Deputy Director Jerry Cook and Associate Director Ken Human join other NASA employees to celebrate lighting of the center's annual holiday tree in the Roy S. Estess Building on Dec. 6. Participants enjoyed caroling and refreshments during the annual lighting ceremony.



# Stennis celebrates post-Katrina holiday season

*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 provides a glimpse into the history of the south Mississippi rocket engine test center.*

In past years, NASA has celebrated the holiday season in unique ways – Dec. 10, 2005, was one of the most memorable. Just a few months after Hurricane Katrina smashed into the Gulf Coast, affecting Stennis families and facilities, the themed party created a North Pole atmosphere with a special guest, Santa, who arrived aboard a boat instead of his sleigh. He was guided down the Pearl River by the Navy's Special Boat Team Twenty-Two instead of his beloved reindeer, Rudolph. Santa's helpers, Stennis visitor relation specialists, joined in with activities for children, including a snow machine. Jovial employees were invited to share wish lists with Santa and enjoy Holiday Village attractions and entertainment. Entertainers who helped to spread holiday cheer for the festive season included now-retired NASA employee Sue Dupuis, who offered a rendition of Trosclair's "Cajun Night Before Christmas."



## Office of Diversity and Equal Opportunity

# Bullying must not be allowed in the workplace

What constitutes a bully? Someone who follows you around making statements that make you feel uncomfortable; someone who talks about you to fellow workers in an unkind manner; someone who makes threats toward your personal wellbeing; someone who excludes or isolates you; someone who de-motivates your quality of work, someone who yells or uses profanity? Many have been bullied at one time or another during their school years, bullying is quite common in the workplace as well. A recent study revealed that 35 percent of the U.S. workforce (more than 53 million adults) report having been bullied at work.

Bullying is usually a pattern of actions meant to frighten, control, offend or humiliate another person. While physical abuse is common in school-age bullying, at work, the threats are more often psychological. Whatever its nature, unaddressed bullying can lead to a decline in employee morale and productivity.

If an employee believes he or she is the target of such workplace behavior, the situation can be difficult to handle but not impossible. The important thing is not to retaliate against the bully. This brings one down to the bully's level and confuses coworkers as to who the bully really is. Instead, employees should discuss the issues that are taking place with a manager, an ombudsman or someone in human relations or the Office of Diversity and Equal Opportunity.

In addition, firmly tell the bullying person that his or her behavior is not acceptable and that it should stop

immediately. An employee may want to ask the person he or she reported the bullying instances to, to join in approaching the person.

Document all bullying behavior that occurs. Keep a written journal with the date, time and exactly what happened. Include the names of any witnesses. Ask coworkers to document bullying behavior. Multiple witnesses to bullying can strengthen a case when reported.

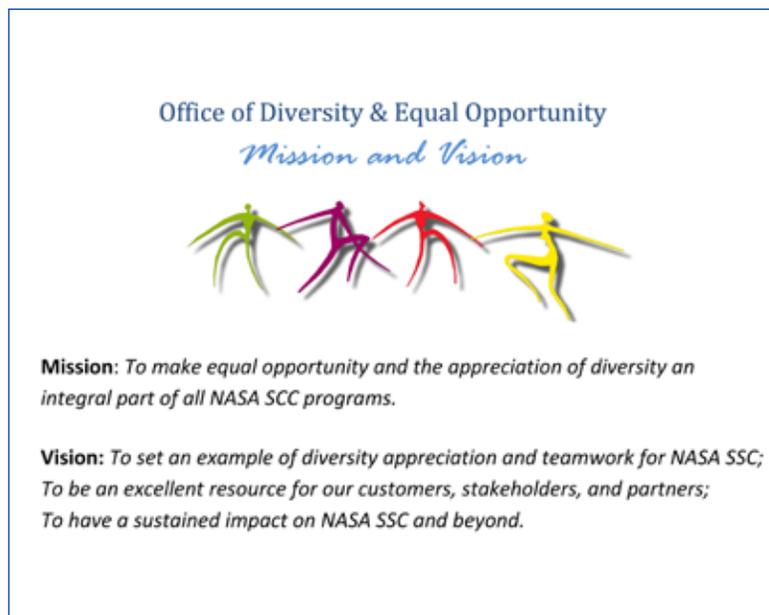
Keep any inappropriate memos, emails or texts received from the person for future reference. Find out what one's employee rights are and address the issues through the proper channels.

With advancing technologies, cyberbullying is becoming more prevalent, especially for young people. If someone sends a mean or threatening

message, or posts something offensive, do not reply. Let children know not to erase bullying messages, posts or pictures. They should be saved as evidence and shared with a trusted adult or authority.

For employees with children, join the child's networks. Learn about their world by joining their social media. Always encourage a child to report online threats. Contact the administrators of the online sites, along with documentation of the language being used, to see if it violates the terms and conditions of the site.

Lastly, get official advice. If one is uncertain whether particular instances of cyberbullying violates criminal laws, contact the local police.



## Hail & Farewell

NASA welcomes the following:

Grant Tregre

Associate Director

Safety & Mission Assurance Directorate

# Stennis marks launch of MAVEN mission with day of activities

Young visitors to INFINITY Science Center enjoy interactive and informational activities Nov. 18 to mark the launch of NASA's Mars Atmosphere and Volatile Evolution (MAVEN) mission to Mars. The MAVEN mission is expected to enter Mars orbit in September 2014 to begin a one-year study of the Mars atmosphere. Data provided during the mission will help scientists understand the composition of the Mars atmosphere and how it evolved over time to turn a planet once possibly habitable to microbial life into a cold and barren desert world. MAVEN is carrying an instrument suite of sensors to collect data, including a magnetometer, imaging ultraviolet spectrometer and solar wind ion analyzer. Prior to the Nov. 18 launch, visitors to INFINITY were able to participate in several hands-on activities, as well as learn about Mars, space exploration and robotics.



# Stennis hosts Family Day activities at INFINITY Science Center



Stennis Space Center employees and their families enjoy a day of activities at INFINITY Science Center during a Family Day event Nov. 23. During the day, visitors were able to view space-related exhibits, participate in fun, hands-on activities, greet Stennis mascot Orbie the astronaut and learn more about the history and future of the nation's space exploration program. Participants were able to take photos of themselves as "astronauts," as well as meet and listen to Apollo 13 astronaut Fred Haise, a native of Biloxi. Visitors joined in an 80th birthday celebration for Haise (right photo), which included a message of well wishes from the astronauts aboard the International Space Station.

