



LAGNIAPPE

John C. Stennis Space Center

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An Orbital Sciences Corporation's Antares rocket launches from NASA's Wallops Flight Facility on Jan. 9, powered by a pair of engines tested at Stennis.

Stennis-tested engines power Orbital launch

Another NASA commercial space partner officially has begun contracted cargo flights to the International Space Station. Dozens of new NASA investigations and other science experiments from across the country headed to the station this month aboard Orbital Sciences Corporation's Cygnus spacecraft. The flight is part of the agency's commercial partnerships with U.S. aerospace companies.

The launch aboard Orbital's Antares rocket took place from NASA's Wallops Flight Facility in Virginia on Jan. 9 at 12:07 p.m.

The launch was powered by a pair of Aerojet Rocketdyne AJ26 engines tested at Stennis Space Center – engine No. 2 tested on Feb. 7, 2011, and engine No. 11 tested on April 4, 2013. AJ26 engine No. 2 also was used at Wallops during initial stage testing of the Antares rocket. It then

was cycled back to Stennis to complete post-test drying before being returned to the flight line.

Orbital's Cygnus spacecraft docked with the ISS on Jan. 12 to deliver 2,780 pounds of supplies to the station, not including the weight of packaging materials. The cargo includes vital science experiments, crew provisions, spare parts and other hardware. The capsule is scheduled to depart the station in February.

"I am very pleased to look back on a 'lucky' 2013 and am excited about another great year in 2014."

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



Lucky 13, lucky 2013 to be exact – that seems like an oxymoron given all the stigmas attached to the number 13: Friday the 13th, no 13th floor on tall buildings, etc. I think 2013 was indeed a lucky year for the Stennis family.

I, too, used to view 13 as an unlucky number, conjuring up bad luck images like black cats at Halloween, Friday the 13th horror flicks, etc. All that changed when my first son, Ryan, was born on Friday the 13th, 1990, and since then, I view Friday the 13th as one of the luckiest days of my life. I realized that our own perception and outlook on things can be controlled and changed if we just make the personal decision to alter our point of view. Many would say 2013 was a tumultuous year with government shutdown, budget cuts and fiscal cliff discussions all once more at the forefront. Nonetheless, Stennis once again produced amazing results in the face of many challenges.

For the third year in a row, Stennis ranked first among the NASA field centers and second overall out of 300 agency subcomponents as Best Places to Work in the federal government. NASA topped the list for the second straight year in the large agency category, and it was my honor to accept our award alongside NASA Associate Administrator Robert Lightfoot at the awards breakfast in Washington, D.C., last month.

To recount some of the many reasons I believe 2013 was a lucky year, Stennis met all NASA and commercial customers' test objectives for the year, including NASA's J-2X engine, Blue Origin thruster and Orbital Sciences' Antares engines by conducting five test campaigns on three stands for 39 tests and over 8,000 seconds of hotfire duration. We completed all planned applied science activities, including refined hurricane flood models, a new water quality analysis tool and an

enhanced soil and water assessment tool used in floodplain management. The team successfully managed the Stennis federal city, working with 41 tenants to ensure everyone continues to enjoy the efficiencies of the shared pool concept. In the procurement area, Stennis pioneered a first-ever \$700 million multiple-award construction contract for NASA, generating \$33.4 million in savings across the first seven tasks at Stennis. We also initiated collaboration with Marshall Space Flight Center in Huntsville, Ala., and the Michoud Assembly Facility in New Orleans to formulate a joint Stennis/Michoud facility and test operations support contract. This should produce significant savings over the contract period.

We made major progress in a joint Federal Aviation Administration/NASA/Department of Defense expansion of Stennis' restricted airspace to enable potential future expansion of unmanned aerial systems operations. In construction, Stennis completed the A-3 Test Stand, ensured award of the high-pressure industrial water B-leg replacement, completed planned B-2 Test Stand modifications in support of a 2016 Space Launch System core stage test and completed two Katrina asset protection projects. We also exceeded all five small business goals for the first time in three years.

We had many retirements and sadly lost a few members of our Stennis family in 2013 but were blessed with a banner year of hiring future leaders into our workforce. So, overall I am very pleased to look back on a "lucky" 2013 and am excited about another great year in 2014. I know we will continue to accomplish great things together. Happy New Year!

Richard J. Gilbrech

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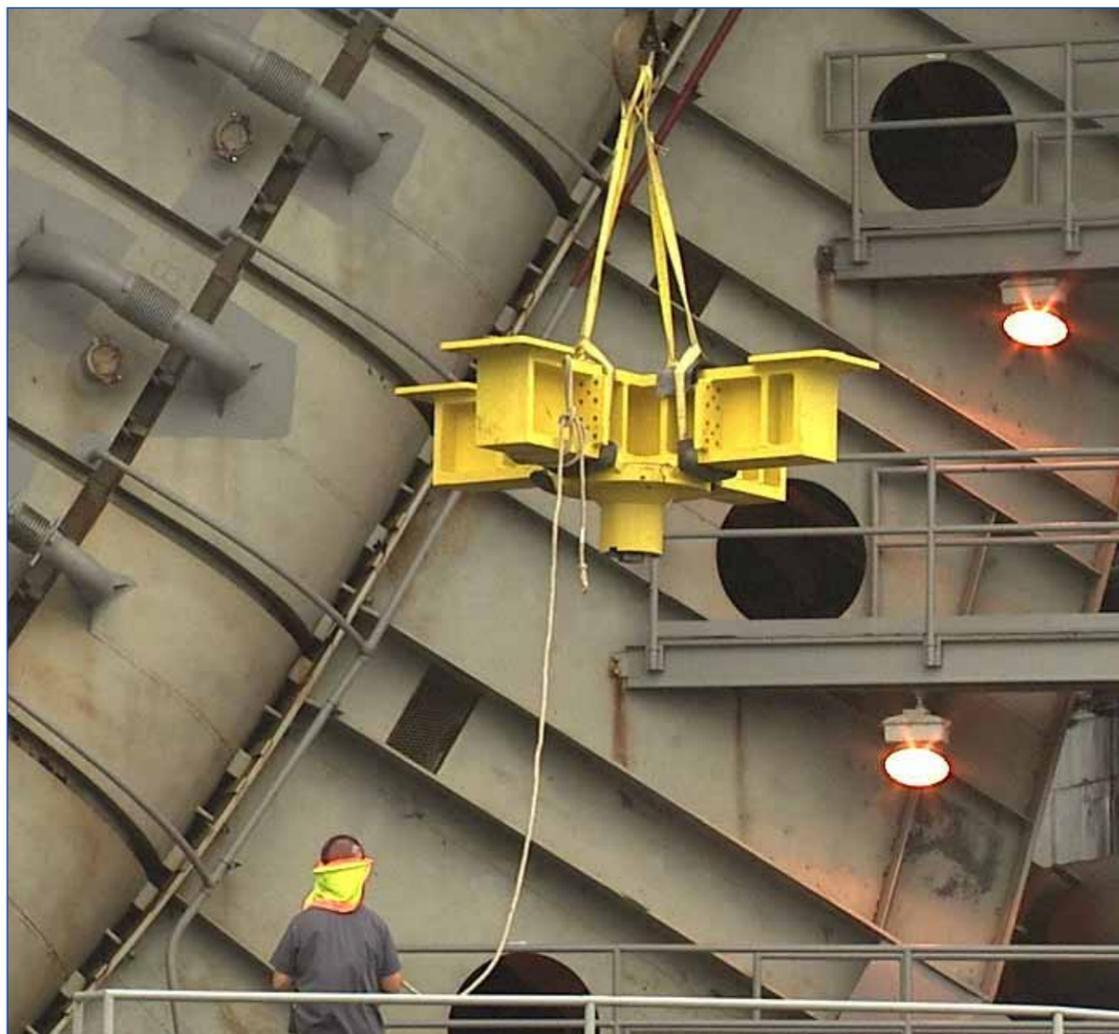
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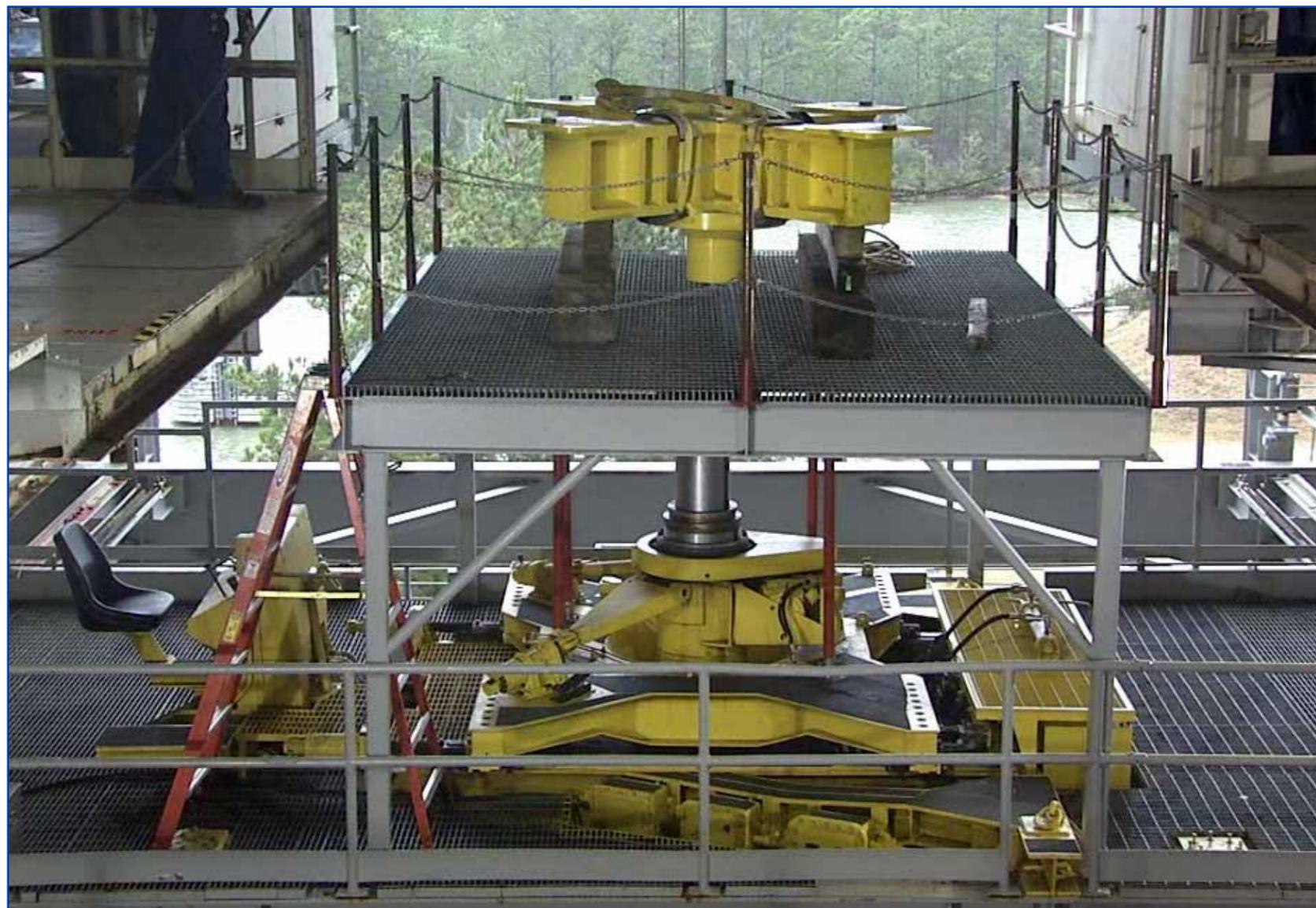
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FULFILLING NASA'S EXPLORATION MISSION



A new thrust frame adapter is lifted and moved into place on the A-1 Test Stand at Stennis Space Center in the closing days of 2013. The new adapter is needed to enable testing of RS-25 rocket engines that will power the core stage of NASA's new Space Launch System. Testing is scheduled to begin in mid-summer, after test stand modifications are completed.



Excitement growing as NASA moves forward with RS-25 engine testing work

Activity is growing in the A Test Complex at NASA's Stennis Space Center in Mississippi as the agency prepares to take a giant step forward in its return to deep space.

Early in 2014, attention is on the A-1 Test Stand, which is being prepared to test RS-25 rocket engines that will power the core stage of NASA's new Space Launch System (SLS). The rocket will carry humans to an asteroid and eventually Mars.

"This is a big year for Stennis, for NASA and for the nation's human space program," said Gary Benton, RS-25 rocket engine test project manager. "By mid-summer, we will be testing the engines that will carry humans deeper into space than ever before."

Renovation of the A-1 Test Stand represents critical ground-work for such future missions. The A-1 test team completed gimbal, or pivot, testing of the J-2X rocket engine in early September, signaling the start of full-scale renovation efforts for RS-25 testing. Equipment installed on the A-1 stand for J-2X testing could not be used to test RS-25 engines because it did not match the new engine specifications and thrust requirements. For instance, in flight, the J-2X engine is capable of producing 294,000 pounds of thrust. The RS-25 engine in flight will produce nearly twice as much – about 530,000 pounds of thrust.

The first RS-25 engine is set to be delivered to the stand in May, and work is progressing, thanks to focused efforts of NASA officials and contractor teams.

A major task was completed on schedule in December with installation of a new thrust frame adapter on the stand. Each rocket engine type requires a thrust frame adapter unique to its specifications. Physically, the adapter is the largest facility item on the RS-25 testing preparation checklist.

Now, sights are set on upcoming work milestones, including:

- Completing piping work needed to deliver rocket propellants for tests.
- Installing necessary instrumentation.
- Completing a readiness review in March, followed by early tests of new piping systems.
- Installing equipment needed to accurately measure rocket engine thrust during tests.
- Installing an initial RS-25 engine.

- Completing preliminary tests of the installed engine and a new rocket engine test controller.

Engineers are scheduled to conduct the first hotfire test on an RS-25 engine in July. Testing of RS-25 engines will continue for years to come in order to power the nation's ongoing human space program.

Anticipation is high, said Jeff Henderson, A-1 Test Stand director. "We've shown what we can accomplish here, and now, we have to continue in that same manner of excellence," he explained. "We just have to stay focused on what it's all about."

The SLS Program is managed at NASA's Marshall Space Flight Center in Huntsville, Ala.

FULFILLING NASA'S EXPLORATION MISSION

Curiosity wheel shows wear and tear of travel



The left-front wheel of NASA's Curiosity Mars rover shows dents and holes in this image taken during the 469th Martian day, or sol, of the rover's work on Mars (Nov. 30, 2013). The image was taken by the Mars Hand Lens Imager camera, which is mounted at the end of Curiosity's robotic arm. At the time of the photo, Curiosity had driven 2.78 miles (4.47 kilometers). An uptick in the pace of wear and tear on the rover's wheels in the preceding few weeks appears to be correlated with driving over rougher terrain than during earlier months of the mission. Routes to future destinations for the mission may be charted to lessen the amount of travel over such rough terrain. Image credit: NASA/JPL-Caltech/MSSS

NASA in the News

NASA reviews top stories of 2013

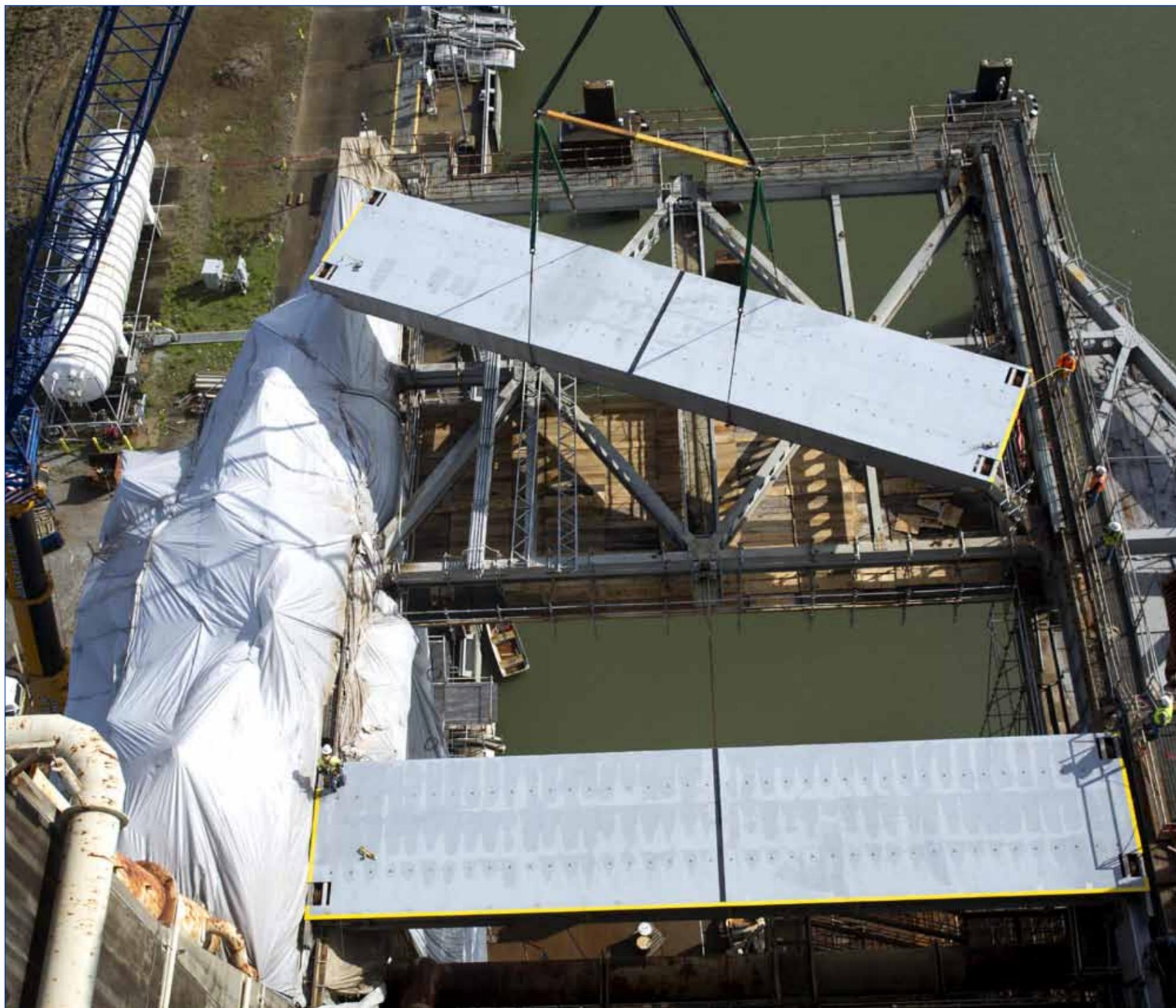
In 2013, NASA helped U.S. commercial companies transform access to low-Earth orbit and the International Space Station even as one of the agency's venerable spacecraft was confirmed to have reached interstellar space, and engineers moved ahead on technologies that will help carry out the first astronaut mission to an asteroid and eventually Mars. "Even in a time of great change and transition, NASA employees stayed focused on what it takes to get the job done – returning space station resupply launches and the jobs they support back to the United States, developing cutting-edge technologies that will help us send American astronauts to an asteroid and Mars, uncovering new knowledge about our home planet and the universe and helping develop cleaner and quieter airplanes," NASA Administrator Charles Bolden said. "It's all the hard work and dedication from the NASA folks on the frontlines that keep the United States the world's leader in space exploration." For a review of NASA's top stories for 2013, visit: <http://tiny.cc/kcjh9w>.

Space station extended to 2024

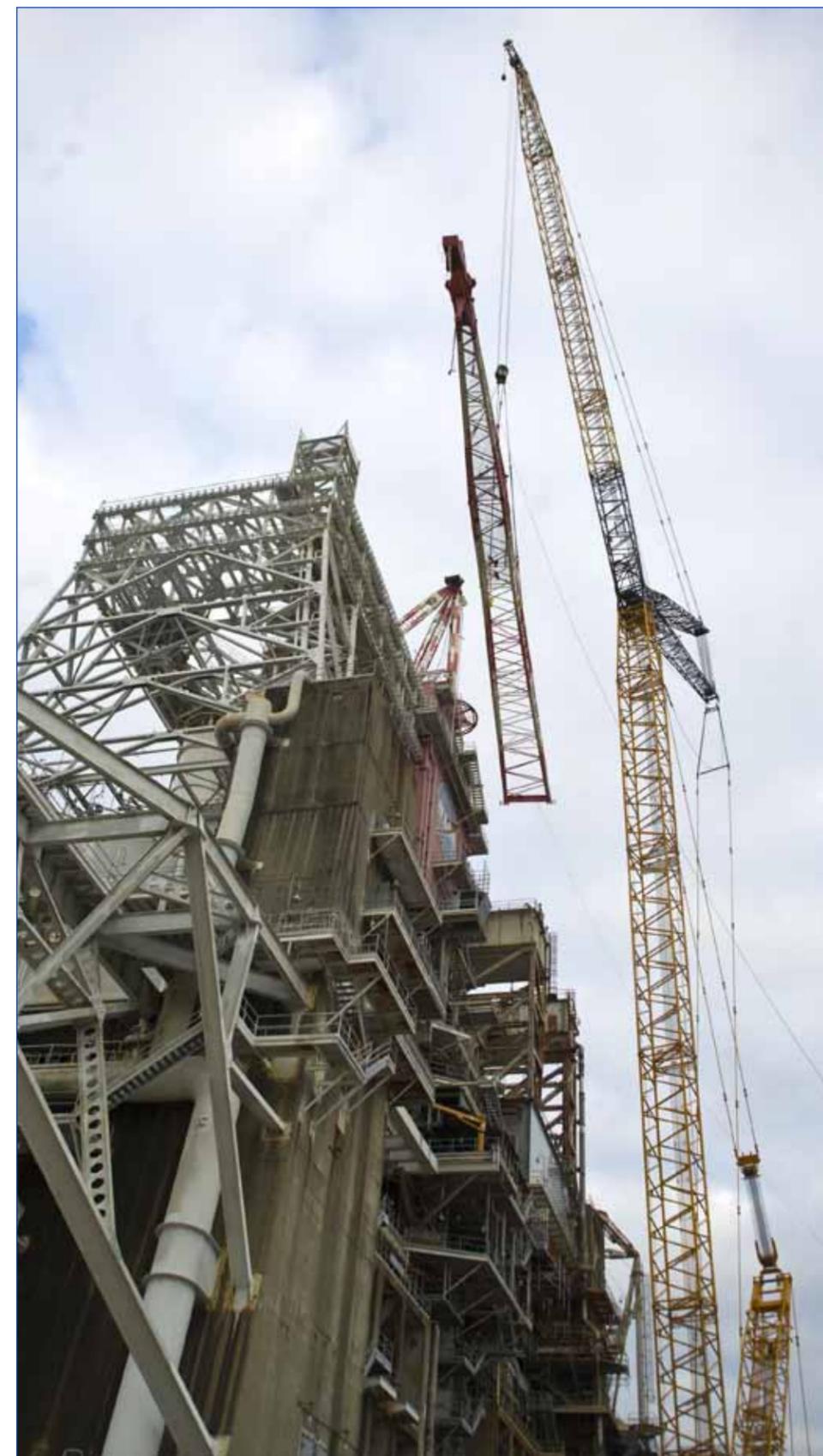
Speaking at the International Space Exploration Forum in Washington, NASA Administrator Charles Bolden emphasized the importance of President Obama's decision to extend International Space Station operations until at least 2024. The decision was announced Jan. 8 in a joint White House/NASA blog posting. In his keynote speech, Bolden cited the role space exploration has played in scientific discovery in space and on Earth, and the ways exploration has led to new technologies. "NASA is committed to the space station as a long-term platform to enable the utilization of space for global research and development," Bolden said. "We're committed to implementing a unified strategy of deep-space exploration, with robotic and human missions to destinations that include near-Earth asteroids, the moon and Mars. And we are committed to our international partnerships and the continued peaceful uses of outer space and unlocking the mysteries of our vast universe."

For NASA news releases, visit: www.nasa.gov/news/releases/latest/index.html.

Work moves ahead on test stand renovations for SLS testing



(Top photo) A new rolling deck is installed on the B-2 Test Stand at Stennis Space Center on Dec. 17, 2013. The new deck is necessary for testing the core stage of NASA's new Space Launch System (SLS), which is scheduled for 2016. The SLS is being developed to carry humans deeper into space than ever, on missions to such destinations as asteroids and Mars.



(Right photo) The existing derrick crane boom is lifted from atop the B-2 Test Stand at Stennis Space Center on Jan. 6. The crane must be extended by 50 feet to enable testing of the core stage of NASA's new Space Launch System. In the 1960s, the crane was used to lift Saturn V stages into place for testing. At 212 feet, however, the SLS stage is taller than the Saturn V stage, creating the need for an extended crane.

Historic Rouchon House still stands at Stennis

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.

After the Oct. 21, 1961, announcement of the future rocket testing complex, the first building NASA officials occupied at Stennis Space Center was the Rouchon House, which turns 53 this year. The house – once located in the former town of Gainesville, one of five towns NASA bought in Hancock County, Miss. – was designated NASA Headquarters during the initial phases of construction.

Located along the banks of the Pearl River, the house was owned by Maurice Rouchon. The two-bedroom, one-story brick house was one of the most valuable in the area and included front and back porches and a sandstone and brick chimney. It was situated on 6.6 acres, along with a boat dock, boat house, storage house, garage and tool shed, four adjacent sheds and a minnow pond.

Visitors were often captivated by the mysterious beauty of the Pearl River and surrounding area. A large wisteria vine at the Rouchon House was a scenic attraction with hundreds of seasonal lavender blossoms in full bloom, embellished by wild magnolias in the area with an aroma of honeysuckle and verbena in the fresh air.

When Dr. Wernher von Braun named Capt. William C. Fortune as NASA's first site manager, Fortune first appeared at the then-Mississippi Test Operations (MTO) in mid-October 1962, while the house was being remodeled for office accommodations. This is where Fortune began building the rocket engine test facility, which was the largest construction project in the history of Mississippi and one of the largest of its kind in U.S. history at the time.



(Above photo) The Rouchon House at Stennis Space Center, circa 1963.

(Below photo) The Rouchon House at Stennis Space Center, circa 2014.



On Nov. 21, 1962, the first flag-raising ceremony took place in the front yard of the Rouchon House, where Old Glory and the official NASA flag were hoisted. Only a handful of people were present. There was no fanfare of speeches, but the event had historical meaning.

This also was the first full day of work at the Rouchon House for MTO's first NASA-hired employee, Margaret McCormick. She prepared refreshments for NASA officials and assisted members of the local press.

MTO initially operated under the direction of Marshall Space Flight Center in Huntsville, Ala. Several NASA employees from Marshall were transferred to work at MTO. They included Henry Auter, Mack Herring, Harry Guin and Chet Law-

less. During later interviews, they all described the first day they reported to MTO at the Rouchon House.

Several renovations were made to the Rouchon House through 1998. It now is a venue to hold conferences.

Fortune visited Stennis in 1997 and was escorted back to the Rouchon House, where the big story began for him 35 years earlier. He noted the sturdy flag pole was still standing firm. However, he was disappointed that the "world's largest wisteria vine" had been accidentally chopped down to make way for parking spaces. "Couldn't they have at least saved some seeds?" Fortune said.

In 1965, NASA Headquarters moved to Building 1100, known today as the Roy S. Estess Building.

Office of Diversity and Equal Opportunity

Managing diversity/inclusion in the workplace

The following article was submitted by Jim Huk, Deputy Procurement Officer, Stennis Office of Procurement.

Before defining what managing diversity and inclusion means to individuals, organizations and the internal/external organizations they interact with, it is important to identify what the concepts are not. First, remove any notion that diversity and inclusion are the same as equal employment opportunity (EEO) or affirmative action under a different name or title. While they may seem closely related, and at times their issues are intertwined, EEO and affirmative action are quite different from diversity and inclusion and are defined below:

Equal employment opportunity: EEO prohibits discrimination against anyone. Its primary objective is to ensure that all applicants and employees, regardless of their protected characteristics (color, race, religion, sex, age, etc.), have a fair opportunity in the hiring process and in competing for promotions and that they have equal access to educational training and professional development opportunities. EEO is a passive principle that requires only fairness in treatment.

Affirmative action: Affirmative action goes beyond non-discrimination. Whereas equal opportunity is passive, affirmative action is a positive, constructive action. The general premise underlying affirmative action is that, absent discrimination, over time an employer's workforce generally will reflect the gender, racial and national origin/ethnicity profile of the labor pools from which the employer recruits and hires. Affirmative action attempts to compensate for past discriminatory practices by requiring federal contractors to engage in "good faith efforts" to expand outreach and recruitment of women, minorities, persons with disabilities and certain protected veterans, thereby making them aware of employment opportunities and providing access to pursue such opportunities.

So, as leaders in any organization, one can quickly see the process of managing diversity/inclusion is not a legally mandated process, but a voluntary process used by every successful organization to ensure their most valuable capital (employees) are fully utilized and have the ability to achieve their full potential.

Managing diversity/inclusion deals with the ability of an organization (a collection of unique individuals with disparate backgrounds and experiences) at the leadership

level, as well as the implementation level, to recognize and leverage the unique differences each individual brings to the workplace. Once a team has effectively recognized these distinctive differences, then each person has a compelling responsibility, regardless of place in the organizational hierarchy, to capitalize and build on those differences in such a way that creates successful positive contributions to the entire organization.

While the preponderance of those positive contributions is generally recognized internally by the host organization, that cannot be allowed to underscore the importance of the benefits attained when working with external organizations. This can be especially important in critical projects that require multifaceted disciplines to work in close coordination with each other to ensure mission success. From the leadership perspective, one must first recognize the diversity that exists in each of the respective organizational portfolios and subsequently find a way to harness that energy in such a manner that everyone feels their contributions are valued.

Generally, when individuals feel their contributions are valued, both in their own organizations, as well as by external organizations, they are more inclined to become part of something bigger than themselves. Leaders who are not successful in managing diversity/inclusion often see talented individuals leave organizations (much to their bewilderment) in search of those organizations or positions in an organization where their uniqueness is not only noticed but valued.

The important issue that must always be addressed in managing diversity/inclusion is the conveyance that differing ideas, thoughts and opinions are *always* valued and not viewed as distractions. Everyone brings a unique vantage point and perspective to the overall characterization of an organization, and managing that precarious balance is critical for the success of the organization, as well as those who make up the organization.

A final point is that each member of an organization has a personal responsibility to ensure diversity and inclusion remain a key focus area that enhances the organization's ability to achieve consistent and better results by engaging people from diverse backgrounds and perspectives.

Stennis kicks off 2014 *FIRST*[®] Robotics season

Thirty-three teams from Louisiana and Mississippi high schools traveled to Stennis Space Center Jan. 4 for the kickoff of the 2014 *FIRST*[®] (For Inspiration and Recognition of Science and Technology) Robotics season.

The teams were welcomed by Katrina Emery, Stennis education director, who underscored that programs like *FIRST*[®] Robotics provides exposure to STEM (science, technology, engineering and mathematics) education and careers while making the experience fun. The annual competition seeks to inspire students to pursue STEM careers.

Participants watched a broadcast from *FIRST*[®] headquarters in Manchester, N.H., featuring *FIRST*[®] founder Dean Kamen, to learn details of their 2014 competition challenge. Teams also received parts kits they will use to build robots to meet the challenge. Teams nationwide are given identical parts kits and six weeks to build robots to compete in scheduled area tournaments.

This year's "Aerial Assist" game will be played by two Alliances of three teams each. Alliances will compete by trying to score as many balls in goals as possible during a two-minute-and-30-second match. Additional points can be earned by robots working together to score goals and by throwing

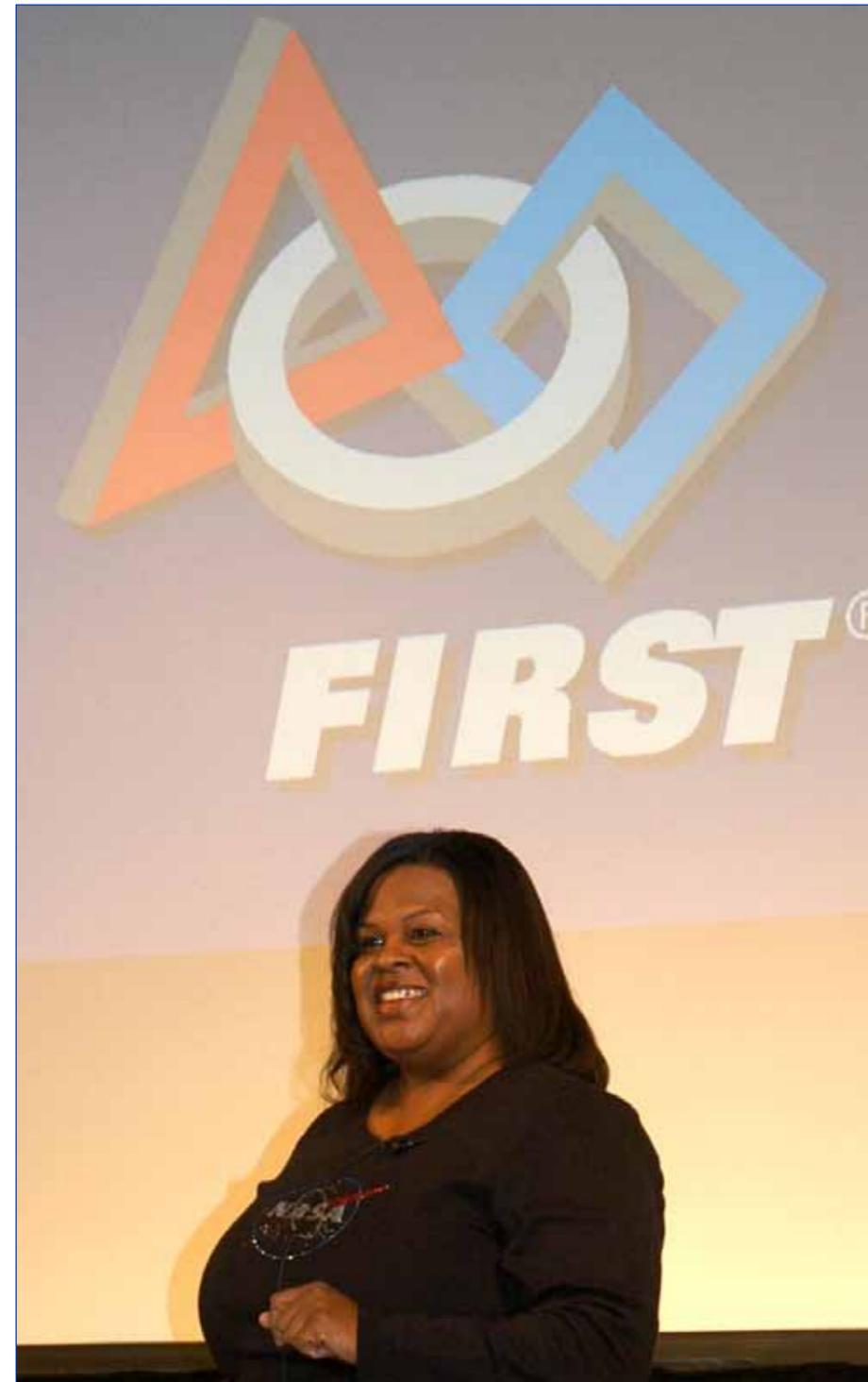
and catching balls over a truss suspended just over five feet above the floor.

A description and video simulation of the "Aerial Assist" game can be found online by searching keyword "FIRST Robotics."

More than 350 students, mentors and officials visited Stennis for the kickoff, the 10th year the center has hosted the season-opening event. Kickoff events also were held in 91 cities across the nation and world, attracting nearly 70,000 students. Kamen noted, "Winning the game is fun, but the importance of FIRST is that you'll get much more out of it than you put in, and it's going to change the rest of your life."

NASA and Stennis Space Center support *FIRST*[®] Robotics Competition with mentors, volunteers and contributions. Interested mentors should call Cheri Miller at 228-688-3802 or email cheri.c.miller@nasa.gov. The 2014 Bayou Regional *FIRST*[®] Robotics Competition is scheduled at the Pontchartrain Center in Kenner, La., on April 3-5.

For more about *FIRST*[®] Robotics, visit: www.usfirst.org/. For more about the Bayou Regional Competition, visit: www.frcbayouregional.com/.



(Left photo) Members of 33 Louisiana and Mississippi high school teams learn details of the 2014 *FIRST*[®] (For Inspiration and Recognition of Science and Technology) Robotics season during kickoff activities at Stennis Space Center on Jan. 4. Some 350 students, mentors and officials attended the kickoff event, including members of rookie teams from New Orleans, Baton Rouge, La., Marrero, La., and Senatobia, Miss.

(Above photo) Katrina Emery, Stennis Space Center education director, speaks to students gathered for the kickoff of the 2014 *FIRST*[®] Robotics season. NASA and Stennis Space Center are supporters of the annual competition for high school teams.

Hail & Farewell

NASA bids farewell to the following:

David Brannon

AST, Engineering Project Management
Project Directorate

Bradley Brown

Lead, Information Technology Specialist
Center Operations Directorate

Michele Stracener

Procurement Analyst
Office of Procurement

Myron Webb

Legislative Affairs Officer
Office of the Director

Mary Whitehead

Supervisory Accountant
Office of the Chief Financial Officer

And welcomes the following:

Travis Martin

AST, Propulsion Systems & Technologies
Engineering & Test Directorate

Jason Richard

AST, Materials & Structures
Engineering & Test Directorate

John Schreck

Realty Specialist
Center Operations Directorate

Robert Watts

Procurement Analyst
Office of Procurement