National Aeronautics and Space Administration

LAGNIAPPE

John C. Stennis Space Center

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Stennis completes initial AJ26 test series

NASA conducted a test fire Dec. 17 (shown above) of the liquid-fuel AJ26 engine that will power the first stage of Orbital Sciences Corporation's Taurus II space launch vehicle. The test at Stennis Space Center supports NASA's Commercial Orbital Transportation Services partnerships to enable commercial cargo flights to the International Space Station.

Orbital's Taurus II uses a pair of AJ26 engines built by Aerojet to provide first stage propulsion. The Dec. 17 test on Stennis' E-1 Test Stand involved a team of Orbital, Aerojet, and Stennis engineers, with Stennis employees serving as test conductors.

The 55-second firing was the second verification test conducted at Stennis. A third test was planned, but Orbital engineers decided to forgo the test based on the success of the first two. A second AJ26 engine was scheduled for delivery by mid-January.

"This second test of the AJ26 engine demonstrates again the quality and versatility of Stennis facilities and the expertise of our test and support team," Stennis Director Patrick Scheuermann said.

Stennis' 2010 Combined Federal Campaign

Goal – $210,000

To-date – $190,654

From the desk of

Patrick Scheuermann

Director

Stennis Space Center

Welcome back! I hope all of you had a relaxing and enjoyable time with family over the holidays. We accomplished great things last year, and we have many exciting milestones ahead in 2011.

This year will be very busy, as we will fly the last missions of the space shuttle. There has been a lot of work going on at Kennedy Space Center to ready STS-133 for launch. We rolled back from the pad to the Vehicle Assembly Building and have been diligently gathering data and evaluating it to determine flight readiness. We will fly when all systems are GO!

We finished out last year accomplishing significant milestones with our commercial partners Pratt & Whitney Rocketdyne on the RS-68 engine and with Orbital Sciences/Aerojet on the AJ26 engine test programs. Our partnerships are contributing greatly to the United States preeminence in space. We look forward to working with them and others this year as well.

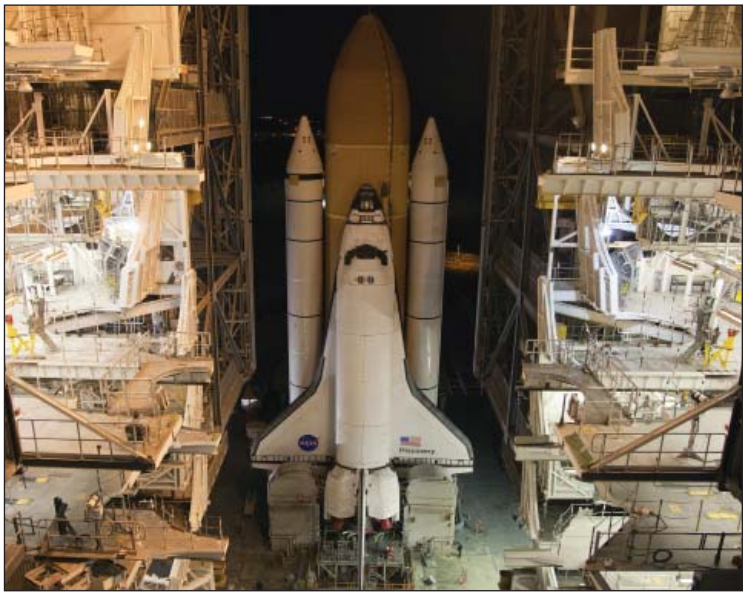
The Mississippi Army Ammunition Plant property, representing nearly two million square feet of physical plant space, will be reincorporated into Stennis Space Center. Over the last three years, we have been planning for this reincorporation, and I am confident this will occur seamlessly. Since 1978, these 4,400 acres and associated buildings and employees have been dedicated to the Department of Defense. We have presented our master plan to NASA Headquarters, and it represents our way forward through the year 2025. The plan has been approved to include this property, and we look forward to incorporating it into the existing federal shared pool concept, further maximizing collaborative opportunity and resources.

This year, we anticipate work to begin on the NASA heavy-lift vehicle. This is a new start and will offer an exciting opportunity for us to provide important component, engine, upper stage and booster stage testing for the agency. Former NASA pioneer Hugh Dryden once said the purpose of tests is to separate real from imagined problems and to reveal overlooked and unintended problems. The testing we do is extremely important to future launch success, and we will be on the front end of our nation's critical path. This is exactly where we have always been in our center's history and where we are most comfortable.

Hopefully you have noticed the north and south gate renovations are complete and important work is beginning on Hwy. 607 (Trent Lott Blvd). This will extend four lanes of traffic completely through the site and connect to I-59. In the event of another hurricane, it will further facilitate coastal county evacuations. This is a special and unique place. Celebrating our 50th birthday continues, and we have many special events and dedications planned. I look forward to another great year at Stennis and to working with you all. Keep up the great work, and great things will continue to happen.

Work continues on STS-133

At press time, Kennedy Space Center employees were continuing to prepare space shuttle Discovery for its STS-133 mission to the International Space Station. The mission has been delayed since last November as repairs are made to the external tank and its support structure. The work necessitated a Dec. 22 rollback of Discovery from Launch Pad 39A at Kennedy to the center's Vehicle Assembly Buidling. Discovery is targeted for launch no earlier than Feb. 24, when an 11-day window will be available. The STS-133 mission is the last flight scheduled for Discovery. During the 11-day mission, the Discovery crew will deliver various components to the space station, including Robonaut 2, designed to perform routine functions that will free astronauts for more complicated tasks and experiments. Upon completion of the mission, Discovery will become the first shuttle to be retired. Atlantis is scheduled to fly later in 2011. A final mission for Endeavour has been authorized but awaits appropriation by Congress.



FULFILLING NASA'S EXPLORATION MISSION

NASA honors Stennis employees, teams

Seven employees and four teams at John C. Stennis Space Center recently received NASA's Space Flight Awareness Leadership and Team awards for great contributions to America's space program.

NASA Constellation Program Manager Dr. Dale Thomas presented the awards during a Dec. 13 ceremony at Stennis. Individuals honored were: Gary Benton of NASA, J-2X Project manager; David Brannon of NASA, Propulsion Test Integration Group manager; Lonnie Dutreix of NASA, A-3 Project manager; Deborah Norton of NASA, management and program analyst; Richard Rauch of NASA, a general engineer; Robert Ross of NASA, A-3 Project deputy manager; and Brian Sproles of Pratt & Whitney Rocketdyne (PWR), A-3 Program integrator.

Stennis teams honored were:

• A-3 Completion Assessment Team, comprised of NASA personnel from across the agency, including Dutriex, Norton, Rauch, Kirk Sharp and Andrew Valente from Stennis. The team was recognized for outstanding work in comprehensively assessing the possible end-state configurations of the A-3 Test Stand being built at Stennis.

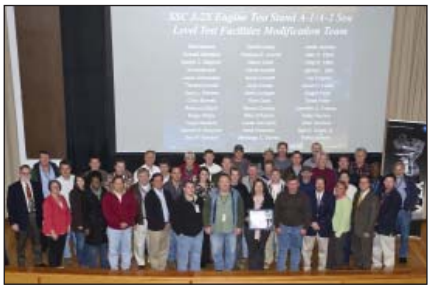
• J-2X Engine Test Stand A-1/A-2 Sea Level Test Facilities Modification Team, comprised of Stennis employees from NASA, PWR, Jacobs Technology NASA Test Operations Group (NTOG), Jacobs Technology Facility Operating Services Contract (FOSC) Group, Patriot Technologies, and the Mississippi Research Consortium/University of Southern Mississippi. The team was recognized for outstanding accomplishments in the design and modification of the A-1 and A-2 test stands, providing a sea-level test capability required for development of the J-2X upper stage engine.

• J-2X Engine Assembly Team, comprised of PWR employees. The team was recognized for outstanding accomplishment in J-2X assembly preparations in support of the upper stage engine development test plan.

• J-2X Engine Test Stand Altitude Facility Construction Team, comprised of employees from NASA, Jacobs NTOG, Jacobs FOSC, PWR and Patriot Technologies. The team was recognized for outstanding accomplishment in the design and construction of the A-3 Test Stand at Stennis, providing a simulated high altitude test capability required for development of next-generation rocket engines.

The J-2X is being developed as a next-generation upper stage rocket engine to carry humans beyond low-Earth orbit into deep space once more. Stennis is modifying the A-1 and A-2 stands for testing the engine and its components and is building the A-3 stand to perform simulated high altitude testing of the engine.

J-2X Engine Assembly Team


J-2X Engine Test Stand A-1/A-2 Sea-Level Test Facilities Modification Team


J-2X Engine Test Stand A-3 Altitude Facility Construction Team

A-3 Completion Assessment Team


Benton


Brannon


Dutreix


Norton


Rauch


Ross


Sproles

NASA, Navy team on teacher project

The Education Office at Stennis Space Center teamed with U.S. Naval Research Laboratory (NRL) counterparts onsite Dec. 10-11 to offer a select group of science educators in the area a unique no-cost training opportunity – to build and operate underwater robots.

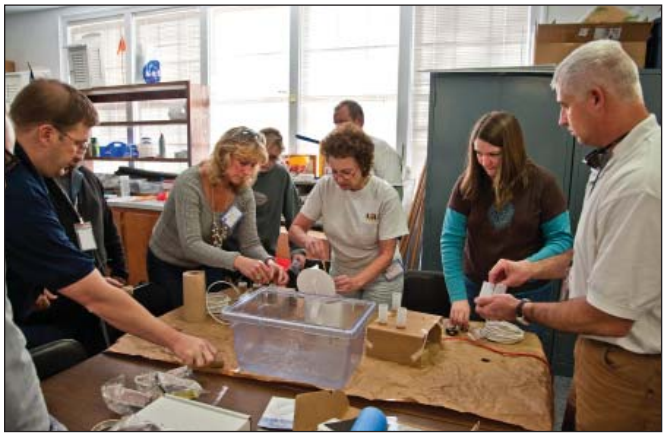
Teachers from Louisiana and Mississippi spent two days at Stennis learning how to build and use Sea Perch, a remotely operated underwater robot. The teachers can take the Sea Perch Program back to students, offering a hands-on activity to inspire continued studies in science, technology, engineering and mathematics (STEM).

"This is an exciting program in an area of growing importance," said Katie Wallace, director of the Stennis Education Office. "Our NASA office has been looking for opportunities to work with the Navy, and robotics is an area both of us are involved in, so it's a natural fit. Partnering together provides us both a new way to reach teachers and students."

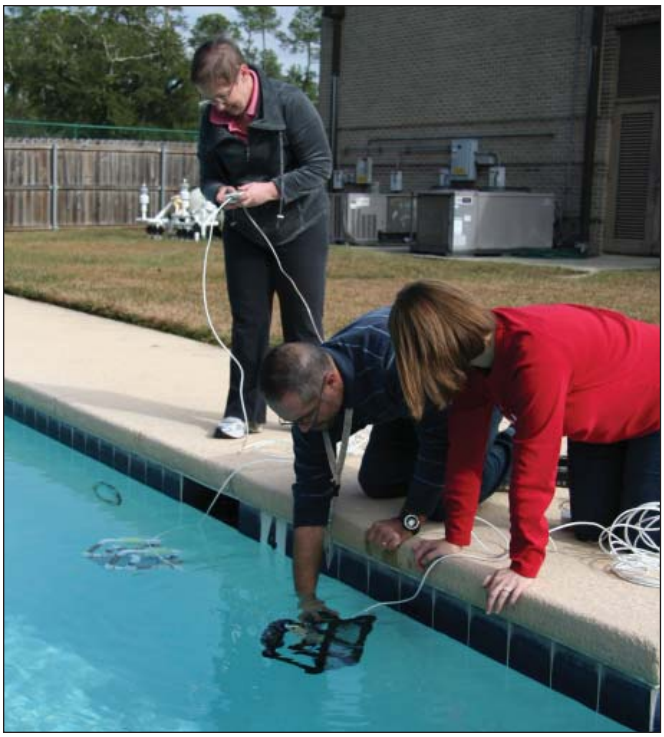
The Stennis office and NRL personnel partnered earlier in the year to introduce the underwater robot to youth ages 13-15 attending an annual Astro STARS Camp. Response from camp participants was good, providing the impetus to offer a pilot teacher training session.

During the two-day workshop, nine area teachers assembled robots from start to finish and spent several hours learning to operate them. Feedback from the teachers will be collected in coming weeks, with hopes that the program can be expanded in 2011.

The robots used are simple underwater Sea Perch vehicles made from PVC pipe and other inexpensive, easily available materials. The Sea Perch Program was created by the Massachusetts Institute of Technology Sea Grant College Program in 2003 to encourage underwater studies and is funded by the National Defense Education Program.



Louisiana and Mississippi science teachers build Sea Perch robots during a recent resource workshop at Stennis Space Center.



Naval Research Laboratory David Lalejini helps a pair of teachers deploy a remotely-operated underwater Sea Perch robot during a Stennis workshop.

Teachers work with students to build their own Sea Perch robots and modify them to conduct research missions in nearby bodies of water. Students then are able to enter water quality data into the Sea Perch Data Bank, an international water quality online database. Collected data is integrated into state-of-the-art GIS maps and comparative graphs, which can be accessed by students and teachers to use in classroom exercises and projects.

Scientists from Stennis Space Center will augment the teachers' Sea Perch lessons in the classroom during the spring semester, providing practical applications and real-world examples of the STEM lessons they learn as part of the Sea Perch Program.

"The Navy operates underwater robots every day from right here at Stennis Space Center," NRL's Dr. Joe Calantoni said. "We want to not only excite students about STEM in general, but also to show our local students that they don't have to leave home to study the depths of the sea or the far reaches of space."

"Much has been said about the importance of inspiring students to pursue studies and even careers in the areas of science, technology, engineering and math," Wallace said. "This is exactly the kind of hands-on, interactive exercise that can provide that inspiration."

Stennis takes science to high school

Researchers at Stennis Space Center have partnered with students at Hancock High School in Kiln, Miss., to study the intrusion of saltwater into vital coastal fresh water areas.

The Salinity Drifter Project conducted by the Stennis Applied Science and Technology Project Office (ASTPO) focuses on collecting valuable data about salinity variations that could impact vegetation and various species located in coastal fresh waters.

Stennis researchers are helping students at Hancock High School assemble and deploy a floating sensor module – a drifter – that will measure salinity and temperature and transmit this information via cell phone and Internet connections.

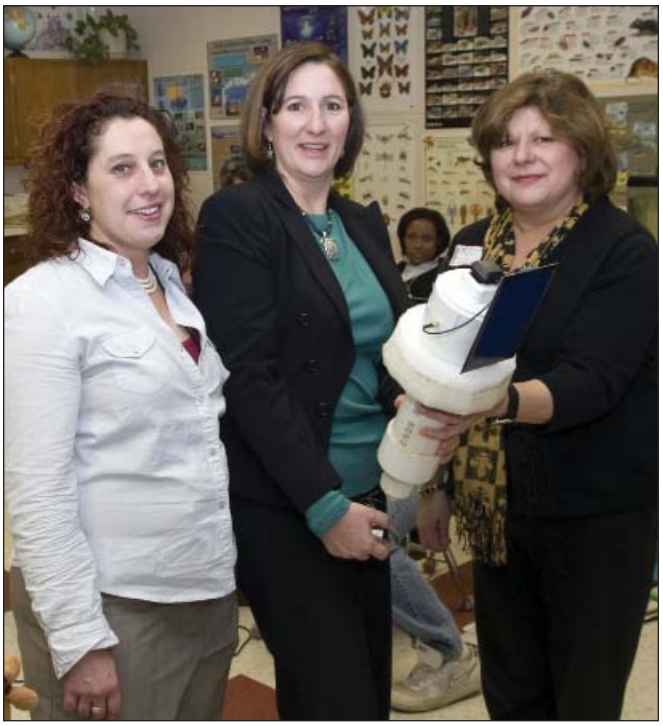
"The Drifter Project provides students with an opportunity to actively participate in NASA research projects," said Duane Armstrong, acting chief of the Stennis ASTPO. "Satellite and airborne sensors provide tremendously valuable information; however, we often need data we cannot get from those platforms. By constructing and deploying the drifter, the students are helping us acquire data we need to understand what is happening to the coastal marshes and other sensitive ecosystems. I hope the experience encourages some of these students to pursue careers in science and engineering."

Salinity is an important indicator of the health of coastal wetlands threatened by sea level rise, storm surge and subsidence in the Gulf of Mexico region. Much of the local wetland vegetation occurs in a mixture of fresh water and saltwater environments. Depending on the amount of saltwater intrusion, vegetation in some marsh and wetland environments may die off or be replaced by more salt-tolerant, and often non-native, species.

NASA researchers at Stennis are monitoring salinity levels in coastal waters but have been hampered by a lack of existing baseline data. Such data can be collected via Conductivity Temperature Depth devices, but it is an expensive option.

In response, Stennis engineers adapted an idea demonstrated at the University of California at Berkeley and developed their own low-cost, floating saline measuring device. The Stennis drifter device can be built and monitored by students. It transmits salinity measurements every 15 minutes to a Twitter account via a cell phone modem. The data then are imported and uploaded to NASA's ASTPO web page.

A field prototype of the drifter was initially tested in the Pearl River at Stennis Space Center. After NASA researchers ensured their prototype was fully operable, they purchased a full set of parts for students at Hancock High School to assemble and later deploy their own salinity drifter as part of a lesson plan developed with NASA for an aquatic science class. By working with NASA scientists, students learned of NASA's Earth science and remote sensing work and were shown the value of pursuing educations in the core fields of science, technology, engineering and mathematics.



Callie Hall (left), a physical scientist with the NASA Applied Science and Technology Project Office at John C. Stennis Space Center, and Maria Kalcic (right), senior research scientist for the CSC information technology company at Stennis, present Hancock High School teacher Shani Bourn a salinity drifter module for her aquatic science class.

The Hancock device will be placed in the nearby Jourdan River and will provide measurement data for several weeks, until the resources of its cell phone component is depleted. Once imported, the data from the device will be available to researchers online.

Callie Hall, NASA team lead for the Hancock project, said she hopes the effort can be expanded in 2011 to add another sensor and improve on the original design. "Collaborating with local high school students on a topic relevant to one of our current projects on marsh monitoring has allowed us to explore future opportunities with these students," she said. "An expansion of the current drifter to include another sensor, such as one that measures turbidity, may assist with data collection for some of our other in-house projects and may allow us to expand the effort to other interested, local high schools."

Flag-raising marks opening of Stennis facility

Note: John C. Stennis Space Center has played a pivotal role in the success of the NASA and the nation's space program. This month, Lagniappe looks back on an important moment in the rocket engine testing center's history.

Forty-six years ago on Jan. 29, 1965, a flag-raising ceremony marked the opening of the Office and Administration Building at NASA's Mississippi Test Operations (MTO), now John C. Stennis Space Center. Key officials from NASA, the U.S. Army Corps of Engineers and the building contractor participated in the event.

The ceremony was held in conjunction with a meeting of the MTO Planning Board, the governing body for the construction and activation of the test facility in Hancock County.

A number of other historical events and milestones have been marked in January during Stennis' 50-year history. These include:

48 years ago

Jan. 10, 1963 – NASA purchases the entire area of land from the town of Gainesville.

22 years ago

Jan. 18, 1989 – Construction begins on the component test facility at Stennis to test turbopump machinery for rocket propulsion systems. Today, the versatile, three-stand complex includes seven separate test cells capable of supplying ultra high-pressure gases and cryogenic fluids, using a variety of rocket propellants.

NASA and area officials participate in a flag-raising ceremony marking the opening of the Office and Administration Building at the Mississippi Test Operations (MTO) facility (now Stennis Space Center) on Jan. 29, 1965. Pictured (left to right) are: Col. R.C. Marshall, Corps of Engineers; T.E. Edwards, Marshall Space Flight Center (MSFC); William C. Fortune, MTO; Bernard Tessman, MSFC; Lt. Col. Roy Beatty, MTO; Karl Heimburg, MSFC; J.T. Shepherd, MSFC; Vincent Hryorchuk, Warrior Constructors Inc.; and Hans Hueter, MSFC.

Seven years ago

Jan. 21, 2004 – The space shuttle main engine reaches a milestone of 1 million seconds of test and flight operations during a test firing on the A-2 stand at Stennis Space Center. NASA officials, media and guests viewed the historic test.

Five years ago

Jan. 9, 2006 – The first test of 2006 is conducted on space shuttle main engine 2058. The acceptance test was conducted on the first space shuttle main engine to be completely assembled at Kennedy Space Center.

Three years ago

Jan. 31, 2008 – A gas generator ignition test on the A-1 Test Stand at Stennis marks first hotfire test on powerpack 1A of the next generation J-2X rocket engine in development.

Stennis employees aid space technology effort

Several NASA employees at John C. Stennis Space Center were involved in the development of Space Technology Roadmap draft reports recently made available by the space agency.

Steve Taylor, deputy chief engineer in the Stennis Engineering and Test Directorate, and David Coote, chief of the Design and Analysis Division of the Stennis Engineering and Test Directorate, joined NASA Chief Technologist Bobby Braun and several dozen NASA employees from across the agency in drafting the reports that address 14 broad technology areas.

Five other NASA employees at Stennis were among about 100 agency peers who reviewed the reports to offer recommended changes prior to release. They included: Coote; Brad Messer, chief of the Systems Engineering and Integration division for the Stennis Engineering and Test Directorate; Shamim Rahman, deputy director of the Stennis Engineering and Test Directorate; Bruce Spiering, an aerospace technologist with the Stennis Applied Science and Technology Office; and Ramona Travis, Stennis chief technologist.

When finalized, the reports are designed to create and maintain an overall technology road map for NASA. The draft reports may be accessed and comments offered at: http://sites.nationalacademies.org/DEPS/ASEB/DEPS_059552.

Office of Diversity and Equal Opportunity

Alternative Dispute Resolution Program

Did you know?

■ There is an Alternative Dispute Resolution (ADR) Program at the center and agency levels. ■ The programs are available to address equal employment opportunity (EEO) complaints quickly and effectively.

The basics

The NASA ADR program is a voluntary and confidential program designed to resolve EEO claims at Stennis and at the agency levels through facilitation by a neutral third party mediator. The program generally uses mediation to quickly and appropriately resolve workplace disputes. It provides individuals with the opportunity to develop mutually agreeable solutions. It also allows the individuals involved in the dispute to have a greater voice in the outcome than in the traditional EEO process, in which the outcome is determined by a NASA official or EEO administrative judge. Finally, ADR can foster stronger, more cooperative working relationships and help to build trust between managers and employees.

Objectives

■ To proactively address workplace EEO conflicts that may surface. ■ To support a work environment where managers, supervisors, employees and applicants for employment have a constructive and expeditious way to resolve EEO disputes and remain focused on the mission. ■ To provide a fair, timely and cost-effective method for resolving EEO disputes. ■ To provide consistency across NASA centers in ADR EEO processes.

The benefits of mediation?

Mediation is an impartial problem-solving process designed to: ■ Lead to a mutually acceptable agreement that is legally enforceable. ■ Allow both parties to develop a realistic assessment of its own, as well as the other party's, viewpoints and alternative solutions. ■ Help parties isolate the problems and issues. ■ Ensure fairness. ■ Help parties communicate effectively. ■ Help parties explore mutually satisfactory solutions instead of taking cases through traditional complaints process. ■ Lead to more timely resolution of EEO disputes. ■ Potentially result in monetary and nonmonetary settlement.

When may I request ADR?

Either party may request ADR at any time during the EEO complaints process, either at the informal (center) stage or the formal (agency) stage.

Will my right to pursue court or administrative action be affected if I mediate an issue?

No. If an aggrieved individual chooses mediation, the individual does not jeopardize his or her right to use the EEO complaints process in the future.

Need more information?

For additional information, contact the Stennis Office of Diversity and Equal Opportunity at: 8-2079 (Jo Ann Larson) or 8-1249 (Brian Hey). To review the Stennis ADR EEO procedures, visit: www.nasa.gov/centers/stennis/about/organization/odeo/index.html.

Hail & Farewell

NASA bids farewell to the following:

Susan Dupuis	Procurement Officer Office of Procurement

And welcomes the following:

Sarah Maine	Contract Specialist Office of Procurement
Daniel Goad	AST, Electrical Experimental Equip. Engineering & Test Directorate
Jason Hopper	AST, Mechanical Experimental Equip. Engineering & Test Directorate
Jack Conley	AST, Mechanical Experimental Equip. Engineering & Test Directorate
Michael Holmes	AST, Mechanical Experimental Equip. Engineering & Test Directorate
Ryan McKibben	AST, Mechanical Experimental Equip. Engineering & Test Directorate
Juan Gomez	AST, Electrical Experimental Equip. Engineering & Test Directorate
Marc Shoemaker	AST, Electrical Experimental Equip. Engineering & Test Directorate
David Carver	AST, Electrical Experimental Equip. Engineering & Test Directorate
Robert Ek	AST, Propulsion Systems and Tech. Engineering & Test Directorate
Robert Drackett	AST, Electrical Experimental Equip. Engineering & Test Directorate
Kimberly Johnson	AST, Facility Systems Safety Office of Safety & Mission Assurance

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2011 FIRST Robotics season kicks off

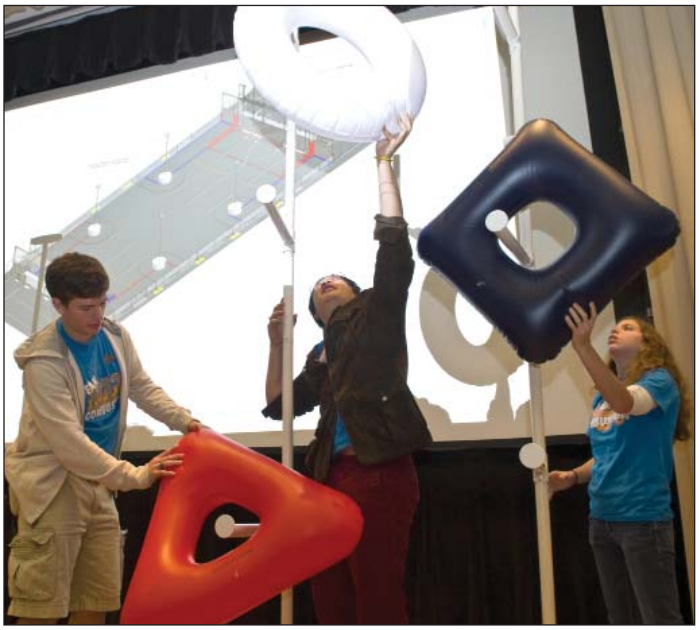
Thirty teams from Alabama, Florida, Louisiana and Mississippi high schools traveled to NASA's John C. Stennis Space Center on Jan. 8 for the kickoff of the 2011 FIRST (For Inspiration and Recognition of Science and Technology) Robotics season.

During the event, team members, mentors, coaches, sponsors and parents watched a live broadcast from FIRST headquarters in Manchester, N.H., featuring FIRST founder Dean Kamen and will.i.am of The Black Eyed Peas to learn their 2011 competition challenge. Team members also received parts kits they will use in the next six weeks to build robots to meet the challenge.

This year marks the 20th FIRST Robotics Competition season. The FIRST Robotics Competition is designed to inspire students to pursue careers in science, technology, engineering and mathematics (STEM).

Each year, teams across the nation are given identical parts kits and six weeks to build robots. The teams then use the robots to compete in regional events and a season-ending national tournament.

"It's not just about robots," Kamen said. "It's about building self-confidence, respect and important relationships with people who invent new technologies to make a better future."



Chris Collins (l to r), Andy Zhou and Rachel Holladay from Northshore High School in Slidell place FIRST logo pieces during a Jan. 7 kickoff event for the 2011 FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition season. Thirty teams from four states attended the Stennis event.

"I'm inspired by FIRST," will.i.am said. "I've traveled all over the world, and this is the most exciting thing. You are cool, and I'm going to turn it up so everyone knows it."

For this year's "Logo Motion" theme, a pair of three-team alliances will compete on a 27-by-57-foot playing field with poles, attempting to earn points by hanging as many triangle, circle and square logo pieces as possible. Bonus points will be earned for each robot that can hang and assemble logo pieces to form the FIRST logo. Robots also can deploy Mini-Bots to climb vertical poles for a chance to earn additional points. A description of the "Logo-Motion" game and a video simulation of a match can be viewed online at: www.usfirst.org.

NASA and Stennis support FIRST Robotics Competition through mentors, volunteers and financial contributions. Interested mentors should call Katie Wallace at 228-688-7744 or e-mail katie.v.wallace@nasa.gov.

The 2011 Bayou Regional FIRST Robotics Competition is scheduled at the Alario Center in Westwego, La., on March 17-19.