



LAGNIAPPE

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Endeavour begins long mission

Space Shuttle Endeavour enjoyed a flawless night launch early March 11, heading for a 16-day mission that features five spacewalks.

Endeavour lit up the sky in the first night launch since 2006. The mission - STS 123 - is a full one for the seven-member crew. They will deliver the first section of the Japan Aerospace Exploration Agency's Kibo laboratory to the International Space Station, as well as the Canadian Space Agency's robotic system, known as Dextre. The first Kibo component is a storage compartment for experiments, tools and spare parts. The two-armed Dextre system is scheduled to be attached to the space station's robotic arm to handle smaller components typically requiring a spacewalking astronaut.

The 16-day mission is the longest shuttle mission to the space station



Space shuttle Endeavour lights up the sky as it lifts off March 11 at 1:28 a.m., right on schedule and without complication. The launch began a 16-day mission full of activity for the seven-member crew.

yet - and the five spacewalks are the most ever scheduled during a shuttle visit to the station. The mission

marks Endeavour's 21st flight and is the second of six shuttle flights NASA has scheduled during 2008.

Cabana briefs members of Congress



John C. Stennis Space Center Director Bob Cabana recently visited Washington, D.C., to brief members of Congress on NASA's fiscal year '09 budget request. He also discussed ongoing and future work by NASA, including construction of a new A-3 Test Stand at Stennis, which will be used to test the rocket engines for NASA's Constellation Program that will return humans to the moon and on to Mars. During his trip to Washington, Cabana briefed senators Roger Wicker (R-Miss.), Mary Landrieu (D-La.) and David Vitter (R-La.), as well as key staff members of Sen. Thad Cochran (R-Miss.). He also met with U.S. Rep. Gene Taylor (D-Miss.), shown at right visiting with Cabana (left) in the congressman's office. Taylor represents Mississippi's 4th District, which includes Stennis Space Center.

From the desk of
Robert Cabana
 Director,
 Stennis Space Center



This year has gotten off to a really busy start here at Stennis, and I want to thank everyone for pulling so hard to keep us on track. We just had another flawless shuttle launch after one of the smoothest launch counts I've ever seen. The Stennis team continues to meet our commitments for the SSME project on the A-2 stand in an outstanding manner, and we were even instrumental in helping solve the pesky shuttle engine cut-off sensor problem that plagued us at the end of last year. This is what the external tank project had to say about the folks from Stennis who helped out at Michoud, "As a result of their dedication and expertise, this team was able to redesign, qualify, certify and successfully fly the new design twice in less than three months. The External Tank Project Office couldn't have done it without you guys!"

We continue to press ahead in the Exploration Program also. The subscale testing that's been accomplished in the E complex is verifying the design of the A-3 stand and helping keep it on schedule to be available for testing the end of 2010. J-2 powerpack testing

continues on the A-1 stand, gathering data for the design of the J-2X and helping to prepare the test team for the work ahead of them. The support from everyone involved couldn't be better.

I had the opportunity to visit with some members of the Mississippi and Louisiana congressional delegations while I was in Washington to let them know how we're progressing and discuss our transition from the shuttle to Constellation Program. I want you to know that they all see the importance of what we do here to our future and are fully behind us. They asked me what my goals are for the Stennis Space Center. I told them my number one commitment is to meet our requirements to the Shuttle and Constellation programs and ensure that the gap between the last flight of shuttle and the first flight of Ares does not grow because of any delays in our work at Stennis. We have to be successful in the development and test of the J-2X engine, delivering it on cost and on schedule; there is no other option. I also told them that I want to ensure Stennis remains a world-class facility for rocket propulsion testing and that we continue to provide quality jobs and improve life on the Gulf Coast.

**"We have
 an outstanding
 mission and
 an outstanding
 team to
 accomplish it."**

We have an outstanding mission and an outstanding team to accomplish it. Thanks for all you do.

Keep charging,



State senators view test firing

A trio of Mississippi senators and several guests recently visited John C. Stennis Space Center to tour the facilities and witness the test firing of a space shuttle main engine. Those who observed the test included District 34 Senator Haskins Montgomery of Bay Springs, a member of the Senate Veterans and Military Affairs Committee (second from left); Tami Acosta of Pratt & Whitney Rocketdyne (fourth from left); District 47 Senator Ezell Lee of Picayune, chair of the Senate Veterans and Military Affairs Committee (fifth from left); Nan Coole of Pratt & Whitney Rocketdyne (second from right); and District 4 Senator Eric Powell of Corinth, vice chair of the Senate Labor Committee (far right).

FULFILLING NASA'S EXPLORATION MISSION

A-3 Test Stand project moves forward

Work on what will become a 300-foot-tall rocket engine test stand is moving forward at Stennis Space Center in South Mississippi.

Construction of the new A-3 Test Stand is a critical step in NASA's Constellation Program, which aims to return humans to the moon and on to Mars. The A-3 stand will be used to test the new J-2X engines that will power the upper stages of the Ares I and Ares V crew and cargo vehicles.

A contract to begin fabricating the steel structure for the A-3 Test Stand was awarded in February to IKBI, Inc., of Choctaw, Miss. Work on the main stand foundation is complete. Completion of support structure foundations will clear the way for workers to begin erecting about 4 million pounds of structural steel to be used for the stand tower. The tower is set for completion in November.

"The construction of the A-3 Test

Stand is progressing extremely well," said NASA's Lonnie Dutreix, A-3 Project Manager at Stennis Space Center. NASA is providing the structural steel for the project, and IKBI is



responsible for its processing and fabrication. The new stand will allow engineers to test the J-2X engine's operating parameters by simulating conditions at different altitudes. To accomplish this, the test stand will generate about 4,620 pounds per second of steam, which will be used to reduce engine cell pressure and create the vacuum needed to simulate conditions up to 100,000 feet in altitude.

The new test stand will be able to handle thrust levels up to 1 million pounds and will allow long-duration tests of 550 seconds. The first tests of the J-2X engines at the stand are planned for late 2010.

As construction of the new stand proceeds, testing of a miniature version of the exhaust diffuser that will be used on the A-3 structure is underway in the E Test Complex at Stennis. "We finished the first phase of testing on the Subscale Diffuser in the E-Complex," said Dutreix. "Heat flux data from that test series will be used to design the full

scale diffuser for A-3. We are building up the E2 facility to conduct performance testing in July of this year on the chemical steam generators."

"I can't say enough good things about the A-3 team," said Dutreix. "The A-3 project would not be this far along without all the experience and dedication on the team and here at Stennis Space Center."

Subscale diffuser tests critical to A-3 construction

The subscale diffuser project in Stennis Space Center's E-complex is an integral part of the overall A-3 Test Stand construction work. Its purpose is to build and test a small-scale version of the large diffuser needed on the test stand so design and development concerns can be discovered and addressed before the full-size diffuser is constructed.

The diffuser is a critical component of the A-3 stand – it must be designed and work properly to enable high-altitude testing of the J-2X engine. The diffuser on the A-3 Test Stand will allow engineers to regulate pressure and temperature and generate the

4,600 pounds of steam per second needed to simulate altitudes of up to 100,000 feet in the A-3 test cell.

The subscale diffuser project at Stennis already has proven its worth, according to Barry Robinson, subscale diffuser project manager. "The whole point is to possibly alleviate or address concerns associated with the construction of the full-scale model," he said. "The intent is to handle those concerns on a smaller scale efficiently and at a cheaper cost of time and money."

That has absolutely happened in this case, Robinson added. Subscale test findings have had a "profound" effect

on the diffuser design, uncovering concerns that need to be addressed in construction of the full-scale model, he said. "The design works, but there are some changes that need to be incorporated," Robinson said. Engineers now are investigating exactly what modifications will be needed to the design and making those changes in the subscale hardware they have in place.

Testing of those changes will continue until the end of the month, with a potential for additional testing after that time. However, that will have to be determined by the J-2X rocket engine development and design work.

Scientist working at front line

More than 30 scientists -- including one from John C. Stennis Space Center -- will embark next week on a research mission to the Southern Ocean. Researchers will battle the elements to study how gases important to climate change move between the atmosphere and the ocean under high winds and seas.

NASA, the National Oceanic and Atmospheric Administration (NOAA), and the National Science Foundation are sponsoring the Southern Ocean Gas Exchange Experiment, a six-week research expedition aboard the NOAA ship Ronald H. Brown, which departed Feb. 28 from Punta Arenas, Chile. The Ronald H. Brown is a state-of-the-art oceanographic research platform and, at 274 feet, it is the largest research vessel in the NOAA fleet.

Participating in the Southern Ocean expedition will be Dr. Richard Miller, an oceanographer in the Science & Technology Division at NASA's Stennis Space Center in Mississippi.

Miller and scientists from dozens of universities and research institutions will measure turbulence, waves, bubbles, temperature and ocean color, and investigate how these factors relate to the air-sea exchange of carbon dioxide and other climate-relevant gases.

Their research will help improve the accuracy of climate models and predictions.

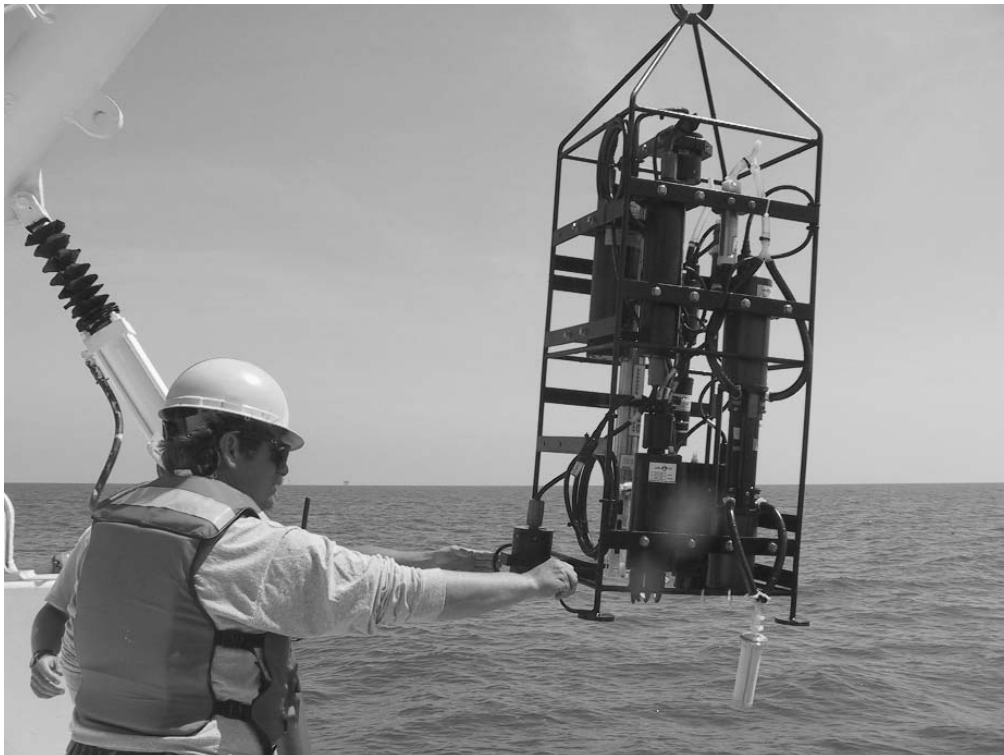
Miller's research will focus on measuring the distribution and changes of colored dissolved organic matter (CDOM) in the water. Because organic matter changes to carbon dioxide as it degrades, it's a critical element in NASA's understanding of the global carbon cycle. CDOM changes the color of the water by absorbing light and allows researchers to detect these changes using NASA remote sensing technologies.

Miller will analyze his water samples using an instrument called the UltraPath, which was developed through an innovative partnership between NASA's Stennis Space



When NASA oceanographer Richard Miller heads out to the edge of Antarctica, where he will find 20-foot waves, high winds on earth and important research work related to

Center and World Precision Instruments, a private company in Sarasota, Fla. The UltraPath is used to determine the contribution of CDOM to the spectral absorption of light. It is estimated that the world's oceans absorb about 2 billion metric tons of carbon from the atmosphere every year, which is about 30 percent of the total annual global emissions of carbon dioxide. Scientists know higher wind speeds promote faster exchange of gases, but there have been very few studies aimed at directly measuring these exchanges under real world conditions where other factors, such as



Dr. Richard Miller, an oceanographer at NASA Stennis Space Center, retrieves a bio-optics instrument package from aboard ship on a recent research cruise. He begins another cruise to the Southern Ocean this month.

Frontlines of global warming battle



On his latest scientific cruise, he will be headed for the near-freezing temperatures, some of the strongest of global warming.

ogy and biogeochemistry research program at NASA Headquarters in Washington. “NASA’s global satellite observations of ocean color that reveal so much about the health of our oceans also will be improved in this region as we validate what our space-based sensors see with direct measurements taken at sea.”

NASA’s Aqua satellite makes ocean color observations over the Southern Ocean every few days with the Moderate Resolution Imaging Spectroradiometer. The satellite, launched in 2002, uses six instruments to make global measurements of the atmosphere, land, oceans, and snow and ice cover.

The Southern Ocean covers a vast area and has some of the roughest seas found on Earth.

breaking waves observed in the Southern Ocean, can influence the process. This research will help to better understand these processes because it will be conducted by an interdisciplinary team in an understudied region of the world’s ocean.

“NASA’s ongoing effort to understand the global carbon cycle will benefit from the data this cruise will produce about the mechanisms that govern gas transfer in this remote part of the world’s ocean,” said Paula Bontempi, manager of NASA’s ocean biol-

“It is the largest ocean region where the surface waters directly connect to the ocean interior, providing a pathway into the deep sea for carbon dioxide released from human activities,” said Christopher Sabine, an oceanographer at NOAA’s Pacific Marine Environmental Laboratory, Seattle, and co-chief scientist on the cruise.

“Understanding how atmospheric carbon dioxide is absorbed into these cold surface waters under high winds speeds is important for determining how the ocean uptake of carbon dioxide will respond to future climate change.”

“We will be directly assessing the rate and mechanism by which the ocean is taking up carbon and releasing it,” said cruise co-chief scientist David Ho of Lamont-Doherty Earth Observatory of Columbia University, Palisades, N.Y. “This is the first U.S.-led effort to use all the state-of-the-art tools that we have to quantify gas exchange in the Southern Ocean. After years of planning, it is extremely satisfying to see the experiment finally take place.”

For more information on the experiment on the Web, visit: <http://so-gasex.org>.

For information about NASA and agency programs on the Web, visit: <http://www.nasa.gov/home>.



Beginning Feb. 28, NASA scientist Richard Wilson will spend six weeks aboard the Naval Oceanographic and Atmospheric Administration research vessel Ronald H. Brown, measuring the Southern Ocean’s carbon content.

NASA honors Stennis workers

Fourteen employees of NASA's John C. Stennis Space Center recently were honored by NASA's Space Flight Awareness Program for their dedication to quality work and flight safety.

The honorees were: Tim Pierce, Paul Rieder, Connie Shuler and Scot Gressaffa, all of NASA; Terri Bennett, Rachel Harrison-Woodard, Brian Yochim and Estelle Torregano, all of Pratt & Whitney Rocketdyne; Rahien Lyons and Louis Arceneaux, both of Jacobs Technology (FOSC); Dennis Butts and Craig Franklin, both of Jacobs Technology (NTOG); Wanda Williams of Applied Geo Technologies; and Justin Smith of Computer Sciences Corporation.

All but three of the award recipients recently traveled to Kennedy Space Center, Florida, to witness the launch of STS-123. While there, they were honored at an awards ceremony, met members of the NASA/contractor



Several John C. Stennis Space Center employees recently were honored by NASA's Space Flight Awareness Program during an Orlando ceremony. Shown above with Stennis Space Center Director Bob Cabana and NASA Associate Administrator for Space Operations Mission Directorate William Gerstenmaier are (left to right): Paul Rieder, Wanda Williams, Tim Pierce, Cabana, Craig Franklin, Gerstenmaier, Rahien Lyons, Scot Gressaffa, Justin Smith, Patrick Scheuermann and Louis Arceneaux.

management team and astronauts and toured the space center.

NASA's Space Flight Awareness Program recognizes outstanding job performances and contributions by

civil service and contract workers during the year and focuses on excellence in quality and safety in support of human space flight. The award is one of the highest honors presented by NASA to contract employees.

Stennis security participate in training

The security officers at NASA John C. Stennis Space Center do more than protect the nearly 5,000 employees who work at the facility; their job is one of national security and requires that they retrain every two years.

What changes? "The bad guys," says Tim Suspanic, an instructor with NASA Federal Law Enforcement Academy (NFLEA). "A suspect, like any adversary, learns your tactics, and they make adjustments based on what you do. We have to always stay ahead of them."

Suspanic is one of four instructors who conducted a five-day workshop Feb. 18-22 for Stennis security officers. The program recertifies officers with the authority to make federal arrests. It covers every aspect of law enforcement, from the physical to the mental. "We don't do it to over-tax them, we do it to empower them," Suspanic says. "We like to

encourage them to know what they can do and what they cannot do. Instead of examining their limitations, examine how far they can go and how far they can reach out."

In addition to Suspanic, instructors for the course were Keith Costa, Rick Lanoue and Michael "Scotty" Scott. All come from military or police backgrounds and travel to offer the course at all NASA centers.

Suspanic says he is pleased with the officers at Stennis. "This is my first time at Stennis, and I'm extremely pleased. with the abilities and the quality of the people," he says. "As far as these officers' ability to perform, they would match up with any NASA security force."



Frank McClellan (top), a security officer at NASA John C. Stennis Space Center, takes the offensive in a training exercise conducted by Tim Suspanic, an instructor with NASA Federal Law Enforcement Academy.

Maj. Greg Garrett, with SSC's security force, Paragon Systems, says SSC security officers will benefit from this course by knowing they are capable of handling almost any given situation. "This refresher updates us to what is currently being taught and being used by law enforcement on the street."

Women’s History Month reminder - Do not ignore signs of heart problems

In March, Women’s History Month, we normally reflect on the progress women have made in the 20th century. However, throughout history, women’s health issues have played an important part of the study of society.

Illnesses, diseases, causes and treatments all reflect the period in time when they occurred. For instance, during the early 1900s, women suffered from infections attributed to the society in which they lived. Poor sanitation and lack of knowledge of germs gave rise to the frequent infections that plagued women during epidemics. Childbirth was the number one killer.

Since then, advances in medicine and sanitary conditions have brought about a different avenue of health problems for women. The women of today face not only diseases of genetic origin, but diseases that arise from the poor habits that society has developed, such as smoking, obesity and high cholesterol. Heart disease is now the number one killer of women.

Heart disease is a broad term that includes several more specific heart conditions. The most common heart condition in the United States is coronary heart disease, which can lead

to heart attacks and other serious conditions. One fact women need to be aware of - men and women may differ in their experience of heart attack symptoms. For men, the most common sign is pain or pressure in the chest.

Women are more likely than men to have “atypical” signs – shortness of breath, nausea, vomiting, indigestion, dizzy/light-headed, and back, stomach or jaw pain. Before a heart attack, women may have unusual tiredness, trouble sleeping, problems breathing, indigestion, and anxiety. These symptoms can happen a month or so before an actual heart attack. Some of the symptoms may come and go.

Women are less likely to believe they are having a heart attack than men. If you have any of these symptoms in ways that are new or different, don’t ignore them. It is vital that everyone learn the warning signs of a heart attack because treatments are most effective if given within one hour of when the attack begins. Every minute counts. If you have one or more of these signs of a heart attack, call 911 right away!

For more, visit: <http://www.womensheartfoundation.org/>

From the
**Office of
Diversity
and Equal
Opportunity**



Xavier leader speaks at Stennis

Dr. Norman C. Francis was the guest speaker as NASA Stennis Space Center celebrated Black History Month on Feb. 19. Francis has served as president of Xavier University in Louisiana for 34 years and in 2006 was the recipient of the nation’s highest civilian award – the Presidential Medal of Freedom. Pictured are (left to right) Gene Goldman, NASA deputy director; Rear Adm. (Sel.) David Titley, commander Naval Meteorology and Oceanography Command; Dr. Francis; Rick Arbutnot, NSSC executive director; Pierre Leaks of the Naval Oceanographic Office; and Jim Wahl of Pratt Whitney.

This Month in NASA History

Thirty-six years ago, on March 2, 1972, NASA launched Pioneer 10, which became the first spacecraft to travel through the asteroid belt, to make direct observations of Jupiter and to leave this solar system. Designed for a 21-month mission, Pioneer 10 lasted more than 30 years. Its last signal was received in 2003, when the craft was 7.6 billion miles from Earth.



Hail & Farewell

NASA bids farewell to the following:

- Wayne North** Engineer (Mech. Test Operations)
Engineering & Science Directorate
- Dr. Dewey Herring** Education Officer
Office of External Affairs & Education

And welcomes the following:

- Steven W. Taylor** Lead (Management Support Division)
Office of Procurement
- Kimberly Driebergen** Management & Program Analyst
Project Directorate

Teams to face off in FIRST Robotics regionals

It is not a sci-fi movie plot - but robots definitely are descending on New Orleans later this month. On March 27-29, 15 high school teams from Louisiana, 12 from Mississippi and more than a dozen from elsewhere will go head-to-head in the 2008 Bayou Regional FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition in the Morial Convention Center in New Orleans.



The annual FIRST Robotics Competition is supported by Stennis and is designed to inspire high school students to pursue engineering and technology careers.

SSC supports FIRST Robotics by providing coaches, mentors and other volunteers. "Everyone involved devotes a lot to this competition," said Katie Wallace, NASA electrical engineer and acting education director "Mentors especially deserve praise for all the time, energy and commitment they give to the teams."

This year's "Overdrive" competition challenges teams to build robots that can speed in counterclockwise loops around a course while carrying, lifting or throwing large, inflatable "Trackballs." Teams score points by crossing "finish lines" within their lane of traffic or by placing their Trackballs on an overpass.

This year, mentors from Stennis include Jim Barnett, Bo Clarke, James Cluff, Scott Olive, Michele Beisler, Wendy Holladay, Karma Snyder, Debra Rushing, Brennan Sanders, Robert Garguilo, David Lorance, Mak Kersanac and Thom Rich (all NASA employees); Jack Higgs and Greg Eiseman (NDBC-SAIC); Allen Forsman and Drew Haas (PWR); Donald Balch (AGT); Dale Bibee (NRL); Robert Armbruster (Jacobs); Tim Raborn and Jennifer Melton (CSC); and M.J. Miller (PSI).

Stennis director visits with students

A group of third-grade students from Ponchartrain Elementary School in Mandeville, La., recently enjoyed a surprise visit from Stennis Space Center Director Bob Cabana during the school group's field trip to Stennis. Cabana, a veteran astronaut, talked with the students about his four space shuttle flights and answered their questions about space travel. During their field trip, the students toured the Stennis visitor center, StenniSphere, and its space-related exhibits.



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Comments or suggestions should be forwarded to:

NASA PUBLIC AFFAIRS OFFICE
 Attn: LAGNIAPPE
 Mail Code IA10
 Building 1100, Room 306
 Stennis Space Center, MS 39529
 or call:
 228-688-3749



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