National Aeronautics and Space Administration

John C. Stennis Space Center

LAGNIAPPE

Volume 2 Issue 5 www.nasa.gov/centers/stennis May 2007

SSC to build new test stand

A-3 will perform altitude tests on Constellation's J-2X

NASA decided May 1 to build a new rocket engine test stand at its John C. Stennis Space Center in South Mississippi.

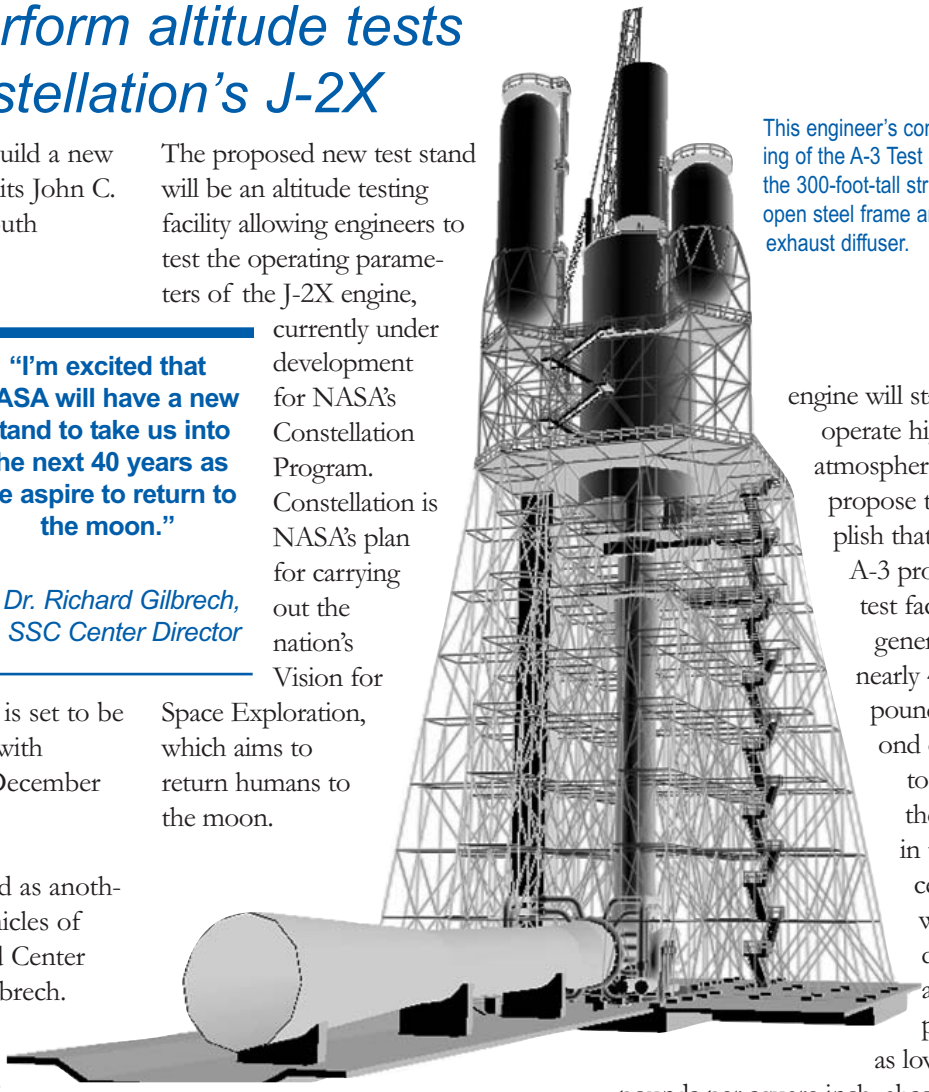
The test stand will be the first new propulsion testing facility to be added to the South Mississippi site since SSC's E Test Complex was activated in the 1990s. It will be the first large test stand built since the center's inception in the 1960s. Construction is set to be complete in August 2010, with engine tests beginning in December 2010.

"I'm excited that NASA will have a new stand to take us into the next 40 years as we aspire to return to the moon."

– Dr. Richard Gilbrech, SSC Center Director

"May 1, 2007, will be added as another historic day in the chronicles of Stennis Space Center," said Center Director Dr. Richard J. Gilbrech. "This new test stand will enable critical testing needed to verify the Ares I upper stage engine performance at altitude conditions. The Apollo-era test stands have served us well over the last 40 years, and I'm excited that NASA will have a new stand to take us into the next 40 years as we aspire to return to the moon and eventually land a human on Mars."

The proposed new test stand will be an altitude testing facility allowing engineers to test the operating parameters of the J-2X engine, currently under development for NASA's Constellation Program. Constellation is NASA's plan for carrying out the nation's Vision for Space Exploration, which aims to return humans to the moon.



This engineer's concept drawing of the A-3 Test Stand shows the 300-foot-tall structure's open steel frame and large exhaust diffuser.

NASA's new crew launch vehicle, Ares I, will take them there, powered by J-2X engines tested at SSC.

In order to test J-2X engines' ability to operate in the vacuum conditions that exist in space, NASA engineers will have to simulate conditions where the engine will start and operate high in the atmosphere. They propose to accomplish that with the A-3 propulsion test facility by generating nearly 4,600 pounds per second of steam to reduce the pressure in the test cell. This will produce start and run pressures as low as 0.16 pounds per square inch, absolute, or the equivalent of an altitude of 100,000 feet. The engine will be located in a vacuum test cell atop an exhaust duct that feeds into a diffuser, directing the engine exhaust away from the test stand.

*See **A-3 TEST STAND,** Page 3*

From the desk of

Dr. Richard Gilbrech

Director,
Stennis Space Center

Tuesday, May 1, 2007, will be added to the list of pivotal dates in the history of Stennis Space Center. On that day, I participated with NASA's senior leadership in discussing and approving a new altitude test stand at SSC.

This new A-3 Test Stand will enable critical testing to verify the J-2X Ares I upper stage engine performance at altitude conditions. The Apollo-era test stands have served us well over the last 40 years and I'm excited that we will build and operate a new stand to take us into the next 40 years as we aspire to return to the moon and eventually land a human on Mars.

The A-3 stand will have a totally different look than the massive concrete A and B stands:

- A 300-foot-tall open steel frame structure
- A footprint measuring 150 feet by 150 feet
- A concrete base measuring 300 feet by 300 feet

A-3 will produce nearly 5,000 pounds of steam per second to actively evacuate a test chamber to 0.16 pounds per square inch absolute (equivalent to 100,000 feet of altitude) for over 500 seconds of test duration. It will also be capable of sea-level testing, and with minor modifications, could perform launch vehicle stage testing.

The stand will be built just south of A-1, currently being modified to test the J-2X's sea-level operations. A-3's support facilities will include a test control center, propellant barge docks, retention pond, access roads and support personnel buildings. Total cost on the project is estimated at $175 million. Construction is set to be complete in August 2010, with engine tests beginning before the end of that year.

I wanted to share this great news with everyone here and to personally thank all of those on the Stennis team who brought us to this point. A year ago, I considered A-3 a long shot, as the agency was struggling with how best to meet the needs of the Ares I upper stage engine development.

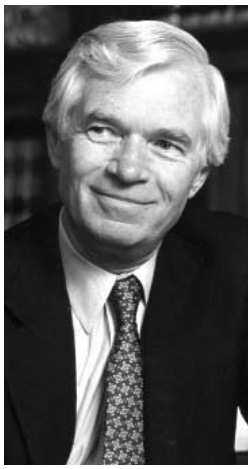
I won't try to name all the folks who worked A-3 formulation, for fear of inevitably leaving someone out. Suffice it to say May 1 was one of the proudest days of my Stennis career. I attribute this not only to the resolve of the small group working the A-3 formulation through its ups and downs, but to the demonstrated track record of accomplishment of our Stennis team.

We have a large but very exciting Exploration challenge ahead to not only build A-3, but to continue our efforts to modify A-1 and B-2 for Ares testing. This will also mean some early E Complex verification testing of a subscale A-3 diffuser and chemical steam generators. Right now, the E Complex is making preparations to conduct those tests, scheduled for E-3's cells 1 and 2. They are set to begin in August.

I consider this a once-in-a-generation opportunity, and wanted to share my enthusiasm with all of you as we launch into what I call "our time" to go back to the moon and on to Mars. Let's go build A-3!

Mississippi's senators comment on new test stand

Sen. Thad Cochran: "This announcement is mutually beneficial for NASA, Mississippi and the nation in promoting the goal of returning man to the moon. The new test stand will allow Stennis Space Center to continue its significant role ... and remain a prominent hub of technical activity and skilled jobs. NASA benefits by using the talented workforce whose knowledge and skills, developed over the years since the Apollo era, have made Stennis the leader in rocket engine testing."



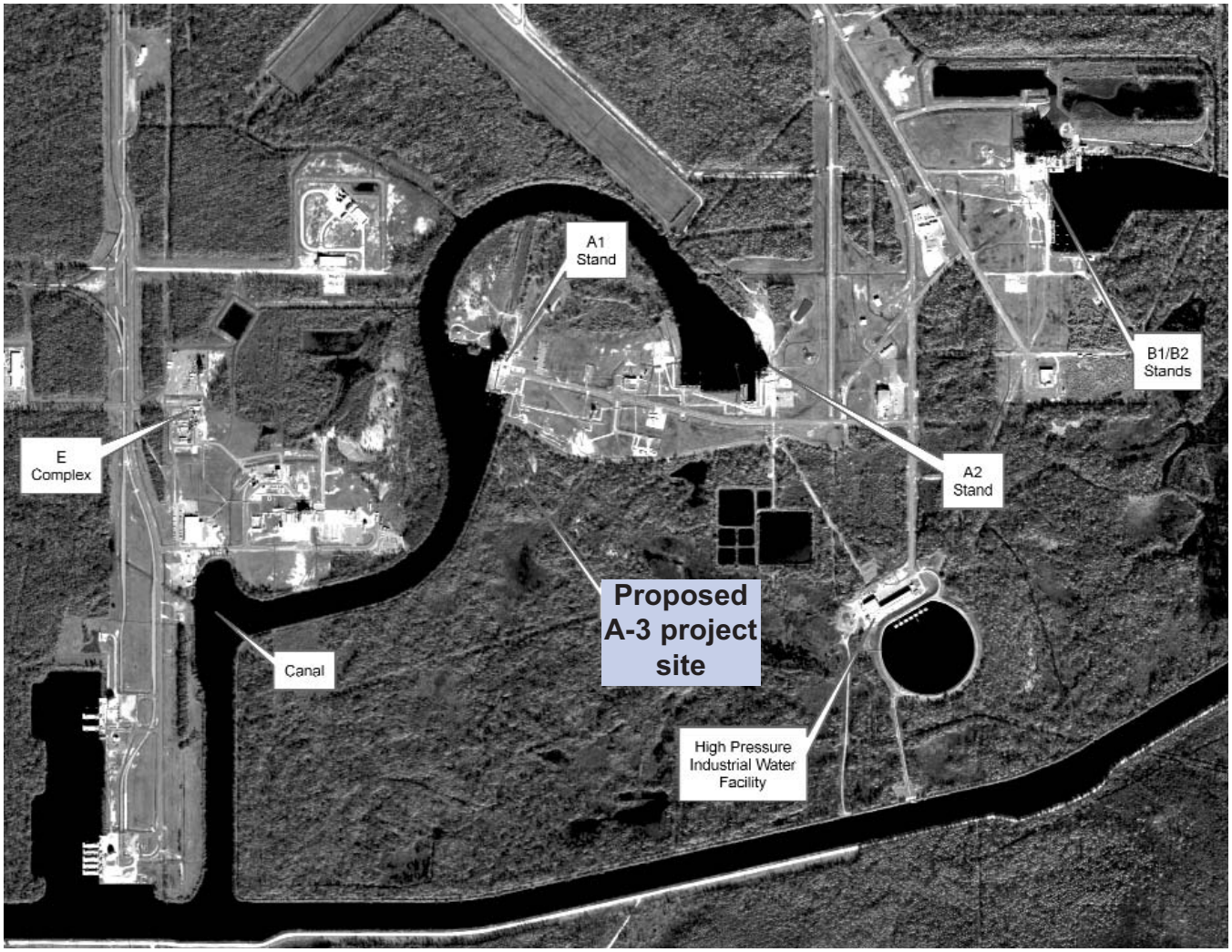
Cochran

Lott

Sen. Trent Lott: "This decision helps cement Stennis Space Center's future as the nation's premier rocket testing facility. Stennis Space Center is indeed a catalyst for Mississippi's job growth, particularly as part of our state's growing aerospace industry. The research and development activity taking place at Stennis certainly complements Mississippi's effort to provide more high-tech, skilled employment opportunities for

FULFILLING THE VISION FOR SPACE EXPLORATION

A-3 Test Stand



This satellite image shows the proposed location of the new A-3 Test Stand within Stennis Space Center's A Test Complex.

Continued from Page 1

Lonnie Dutreix, NASA's formulation manager for the project, said because A-3 will be an altitude testing facility, it will look very different from SSC's mammoth A Complex and B Complex test stands that were built in the 1960s and are still in use.

"It will be very tall, 300 feet, and will have an open steel frame design," he said. "The construction schedule is aggressive, but very achievable. We're committed to meet the first J-2X altitude test date of December 2010."

Dutreix explained that the A-3 stand, along with its test control center, propellant barge docks and access roadways, will be built in SSC's A Complex, just south of the A-1 Test Stand, which is currently under modification to test the J-2X's operations at sea level.

The painting contract work on A-1 is complete, and work continues on its master facility panel and shop air.

Assembly of the J-2X power pack test article in Building 9101 is on schedule for delivery to the test stand in late August. Technicians are at work to fabricate power pack adapter proof test fixtures and to develop procedures to perform those tests.

Elsewhere in the A Complex, the A-2 derrick crane will soon get a fresh coat of paint, and the Test Control Center is set to get a new roof.

Meanwhile, SSC is making preparations in its E Complex to conduct verification tests on A-3's altitude diffuser design, using a 6.5 percent scale functional model. Those tests on the steam ejector diffuser are tentatively scheduled to begin in August.

SSC's Rieben wins prestigious QASAR award

Arthur Rieben, a quality assurance specialist for the Defense Contract Management Agency at NASA's John C. Stennis Space Center, has won NASA's highest honor for quality and safety, the Quality and Safety Achievement Recognition (QASAR) Award.

Art Rieben
QASAR Award winner

According to Mike Smiles, director of NASA's Safety and Mission Assurance office at SSC, this is the first time anyone from the center earned the agencywide award. "We're very proud of Art for receiving this award, and we're proud for the center," Smiles said.

One of 29 nominees and only four QASAR recipients this year, Rieben traveled to NASA Headquarters in Washington, D.C., for a May 10 ceremony, where NASA's Deputy Administrator Shana Dale presented him a monetary award and a plaque. The award recognizes his "exemplary performance, contributing to the efficiency, economy and effectiveness of the Lifting Device and Equipment operations." Rieben is the award winner in Category 3, for a government employee outside NASA.

The QASAR Award recognizes employees who have demonstrated exemplary performance in contributing to quality and safety of products, services, processes or management programs and activities. Rieben's nomination outlined his "positive initiative and successful problem resolution of technical issues" relating to the NASA Lifting Device and Equipment team, responsible for assuring the removal, transport and reinstallation of space shuttle main engines on and off the test stands, and tests all support equipment. In 2006, Rieben oversaw nearly 120 such operations any equipment damage or personnel injury.

"Art's really a topnotch employee," said DCMA Team Chief Herb Hostler. "It's fitting that he's being recognized for his work."

"I've been working with flight hardware since 1980," Rieben said. "I've had a lot of memorable moments, but being selected for the QASAR is right up there among the highlights of my career."

Atlantis' external tank repaired; engines cleared

Space Shuttle Atlantis' external tank has been repaired after a hail storm struck Kennedy Space Center, Fla., in late February. A meeting held May 11 set the schedule for the shuttle's return to the launch pad for the upcoming mission, STS-117.

During a meeting April 16 at NASA's Johnson Space Center, agency officials revised the target launch dates for space shuttle flights during the next 12 months. The space shuttle and International Space Station programs agreed to the changes during a meeting to evaluate options following the STS-117 mission's delay.

Flights beyond April 2008 have not been assessed. Shuttle and station program officials continue to consider options for the rest of the shuttle flights; those target launch dates are subject to change.

- STS-117 targeted for no earlier than June 8, 2007, on Atlantis
- STS-118 targeted for NET Aug. 9, 2007, on Endeavour
- STS-120 targeted for NET Oct. 20, 2007, on Discovery instead of Atlantis
- STS-122 targeted for NET Dec. 6, 2007, on Atlantis instead of Discovery

In Kennedy Space Center's Vehicle Assembly Building, a technician carefully sands foam repairs on Atlantis' external tank. In late February, Atlantis received hail damage during a severe thunderstorm that caused visible divots in the giant tank's foam insulation.

- STS-123 targeted for NET Feb. 14, 2008, on Endeavour
- STS-124 targeted for NET April 24, 2008, on Discovery instead of Atlantis

The shuttles for STS-120, 122 and 124 were exchanged to best meet the demands of the missions and to have the least amount of impact on the flight schedule.

TCC will house Columbia fragment

"Although we grieve deeply…. The bold exploration of space must go on." – ***Families of the Columbia STS-107 Crew***

A fragment of Space Shuttle Columbia's main engine assembly has returned to Stennis Space Center. The fragment, a low-pressure oxidizer duct tripod flex joint assembly with bellows, is destined for a permanent home inside the A Complex Test Control Center.

Space Shuttle Program employees wanted to send each of NASA's four space flight centers an artifact from Columbia's tragic 2003 end. Their hope was that employees at the centers could see the artifacts and have a more personal connection to the accident.

SSC's artifact from Space Shuttle Columbia and plaque

NASA's Mike Nichols, the A Complex facility manager, said, "We felt the test complex was the best place for it since SSC tested the engines for Columbia. We chose the TCC because it would provide the widest audience and the greatest number of employees. Since A-1 and A-2 test stands have both supported the Space Shuttle Main Engine Program, the TCC was a good way to have both stands involved. In general, we just thought it was the best place to present the piece."

The remnant is about 9 inches in diameter, and according to Nichols, it would be nearly impossible to determine from which of Columbia's three engines it came. "It could have been part of any one of the three main engines."

A plaque that accompanied the artifact's arrival reads: "This SSME Low-Pressure Oxidizer Duct Tripod Flex Joint Assembly with Bellows, from the Space Shuttle Columbia, was recovered from East Texas following the tragic loss of Columbia and her crew on Feb. 1, 2003. Great hearts, hands and minds devoted their talents to her recovery, reconstruction and preservation. We honor Columbia, the crew of STS-107 and their loved ones."

The plaque and artifact soon will be set up in a display case in the A-TCC "to remind us how important each and every job is, and how serious it is if we don't do our jobs to the best of our ability," Nichols said.

"I can't imagine a time when someone would not be aware of that tragedy. Thirty years from now, this artifact will serve as a reminder of what Columbia was and what the tragedy meant. We will never forget it."

Astronaut Walter Schirra, 1923-2007

Scott Carpenter, Wally Schirra, Gordon Cooper

Schirra

Astronaut Wally Shirra (center) died May 2 at his home in Rancho Santa Fe, Calif. He was 84. Survivors include his wife Josephine, his daughter Suzanne and son Walter Schirra III. He was the only man who flew in all three of America's first human space projects – Mercury, Gemini and Apollo. Schirra, along with fellow Mercury mission alumni Scott Carpenter (left) and Gordon Cooper (right) visited Stennis Space Center Aug. 27, 2004. Cooper died Oct. 4, 2004. The former astronauts spoke to NASA employees about their missions. The legends of the space program were three of NASA's original astronauts, the 'Mercury Seven.' 'We shared a common dream to test the limits of man's imagination and daring,' Schirra wrote of America's space pioneers. 'Those early pioneering flights ... established us once and for all as what I like to call a spacefaring nation.'

Fort Pike pivotal to Pearl River life

Editor's Note: *Dr. Marco Giardino of SSC's Engineering and Science Directorate provides this column dedicated to the history of Stennis Space Center and the surrounding area.*

Soon after the fall of New Orleans to the federal navy in April 1862, the lives of the settlers along the Pearl River were drastically changed. Fort Pike, which guarded the pass to New Orleans from the Pearl River, had been taken by the Confederacy on Jan. 14, 1861, 12 days before Louisiana seceded.

On Feb. 2, Gen. P.G.T. Beauregard wrote the Louisiana Military Board from New Orleans, calling the Mississippi River "our most vulnerable point," and suggesting "the guns, chassis and carriages of Fort Pike, where they are not required at present, ought to be sent at once to two forts on the river."

Stennis Space Center HISTORY

Disarmed, Fort Pike's occupation probably was not a major task for federal forces. On April 27, Union forces recaptured Fort Pike, which became the outpost marking the strategic eastern extreme of New Orleans, separating Louisiana from Mississippi. It is probable it was during this period that Christian Koch began to have difficulty continuing to operate his schooner and to get passes to go home to Bogue Homa, thus necessitating communications by mail when possible.

By the time New Orleans fell, it was evident the Koch family had become intimately involved with the workings of a war in which they would have preferred to have no part. By this time, Koch was engaged in sailing his schooner, the Experiment. He wrote to his wife Annette from New Orleans on Sept. 10, 1862, urging his sons to avoid military conscription.

Koch was Danish and had no sympathy for the Confederate cause. (He had mentioned in a letter July 15, 1854, that there was more liberty in Denmark than in the Southern states.) It is not surprising he was working with the federals. Nevertheless, he reported he was unable to get a pass for two or three days, and then it would be only to Toomer's mill, at or near Fort Pike in the Rigolets. That, too, was in Union hands, but no matter how close the villages on the Pearl River were, they were off limits without a pass.

Spring feast

NASA employees and their families enjoyed a crawfish boil under the pavilion at the Cypress House on April 20. Along with the traditional ingredients of a crawfish feast, activities for children were provided, including an inflatable jungle gym and slide.

NASA ranks among best places to work

The Partnership for Public Service has released the 2007 rankings for the Best Places to Work in the Federal Government.

The data used to develop these rankings was collected by the Office of Personnel Management in its most recent Federal Human Capital Survey, completed in summer 2006. NASA's workforce continues to score well and is ranked fourth among large federal agencies. The rankings also revealed the following data points regarding NASA:

- NASA ranked second among federal agencies in effective leadership.
- NASA's Hispanic workforce rated the agency first in employee satisfaction and engagement.
- Responses from NASA's under-40 population earned NASA a third place ranking on employee satisfaction and engagement.

Rankings for subcomponents revealed the following: Two of NASA's subcomponents ranked in the top 10 Best Places to Work (Kennedy, fifth, and Johnson, sixth). Of note are Stennis and Marshall at 11th and 12th places, respectively. Three of NASA's centers ranked in the top five subcomponents receiving Best in Class ratings on Teamwork (Kennedy, second; Johnson, third; and Marshall, fourth).

Complete list: http://bestplacestowork.org/BPTW

Black engineers hold annual meet in Ohio

Editor's Note: *Melba Harris of NASA's Business & Facility Management Division attended the National Society of Black Engineers conference and provides this month's column for SSC's Office of Diversity and Equal Opportunity about that meeting.*

The National Society of Black Engineers held its 33rd annual national conference in Columbus, Ohio, on March 28-April 1. This year's theme was "Our Time, Our Renaissance." In attendance were representatives of private industry and governmental agencies as well as thousands of NSBE student members, NSBE alumni members, family members and friends.

NASA, along with other agencies and companies, set up a booth to provide information about NASA and space exploration and career opportunities, and conducted on-site interviews.

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

The Space Special Interest Group, of which the NSBE-SSC chapter is a member, hosted an NSBE Galactic Luncheon on March 30. Dr. Woodrow Whitlow Jr., director of NASA's John H. Glenn Research Center, was the guest speaker. Whitlow earned his bachelor of science, master of science and doctor of philosophy degrees from the Massachusetts Institute of Technology. He provided insight into education and its relationship to the improvement of the quality of life – both personal and professional.

Members of the Spaceward Bound Panel were also on the agenda. They are Tia Sands, Christianna Taylor and LaTasha Taylor. Spaceward Bound Panel is the brainchild of the Space SIG. It provides the opportunity for NSBE students to participate in NASA-sponsored expedition teams to the Mars Desert Research Station located in the Utah desert. MDRS is a place to perform scientific research, learn about habitation and equipment maintenance in Mars-simulated conditions before conducting actual human Mars missions. The students, along with scientists and engineers, spend weeks performing research on what it would be like to live on Mars.

This year's conference lived up to its theme. It is now our time to bring about a change, a renaissance, in space exploration. It is our time to improve the quality of life on Earth. It is our time to go further into the realms of space like our pioneering ancestors did centuries ago, to begin life in the new environment of a place called Mars.

AROUND NASA

■ **Team checking on Odyssey's power supply:** NASA's AIM spacecraft began its two-year mission April 25 after a flawless ride to Earth orbit aboard an Orbital Sciences Pegasus XL rocket. The AIM mission is the first dedicated to exploring mysterious ice clouds that dot the edge of space in Earth's polar regions. These clouds have grown brighter and more prevalent in recent years and some scientists suggest that changes in these clouds may be the result of climate change. With AIM, Hampton University in Virginia becomes the first Historically Black College and University to lead a NASA satellite mission. Dr. James M. Russell III, professor and co-director of Hampton University's Center for Atmospheric Sciences, is AIM's principal investigator.

■ **New video podcast takes viewers to NASA's edge:** NASA has launched a new video podcast, "NASA EDGE," that provides an offbeat, funny and informative look in and around the nation's aerospace program. Whether it is the latest launch, the coolest gadgets or developments in science and technology, the hosts of "NASA EDGE" give an unscripted and unpredictable perspective. NASA released the newest episode of this video podcast, or vodcast, May 3. Chris Giersch and Blair Allen host, with Franklin Fitzgerald as its news anchor. Prior to becoming the "NASA EDGE" host, Giersch was program manager for "NASA CONNECT," an Emmy Award-winning math, science and technology program for middle school students.

■ **FAA partnership to encourage space, aviation careers:** NASA and the Federal Aviation Administration on May 9 signed a Memorandum of Understanding to partner in developing students' skills in science, technology, engineering and math. The agreement supports the FAA's mission to provide the safest, most efficient aerospace system in the world and NASA's mission to pioneer the future in space exploration, scientific discovery and aeronautics research. The partnership's initial focus is on a NASA curriculum called "Smart Skies," an online air traffic control simulator for students in fifth through ninth grades. It offers a fun and exciting way to learn math and skills central to air traffic control while providing multiple modes of problem solving.

Hail & Farewell

NASA bids farewell to the following:

Ted Franklin – retired, program analyst, Rocket Propulsion Test Program Office

Bob Jeffries – retired, support services specialist, Center Operations Directorate

Warren Wood – contract price/cost analyst, Business Management Directorate

Celebrating Earth Day

Bay St. Louis Master Gardener Alice Holmes (left) talks with Mississippi Space Services' Randy Stonebraker about gardening's finer points during Stennis Space Center's Earth Day observance May 3. The Master Gardeners of Hancock County provided free seedlings, while other agencies talked about research or provided recycling ideas.

DIAMOND TOURS RETURNS – On April 24, about 25 business professionals from Georgia traveling with Diamond Tours visited StenniSphere, marking the tour company's return to the visitor center since Hurricane Katrina struck Aug. 29, 2005. Before then, the nationwide company brought more than 1,000 visitors to StenniSphere each month, accounting for more than 100,000 visitors touring the space center each year.

Explorer School symposium

Paris McClendon, 12 (seated), drives a robot with help from Northshore High School student Jonah Berman during a demonstration about FIRST Robotics Competition at Stennis Space Center. Waiting their turns at the robot controls are Shekinah Smith (second from left) and Jaqula Jefferson, both fourth-graders at NASA Explorer School Lillie Burney Elementary in Hattiesburg, Miss. Berman and fellow FIRST Robotics team members Jeremy Baumgartner (left), Laamia Islam (second from right) and Joey Tauzin (right), all of Slidell, La., took part in a symposium May 7 at SSC to emphasize the principals of FIRST, 'For Inspiration and Recognition of Science and Technology.' The symposium included demonstrations of robots built for FIRST LEGO League, a competition for students ages 9-14.

LAGNIAPPE

is published monthly by the Office of External Affairs – Public Affairs at NASA's John C. Stennis Space Center.

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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