National Aeronautics and Space Administration

John C. Stennis Space Center

LAGNIAPPE

Volume 4 Issue 3 www.nasa.gov/centers/stennis March 2009

Gilbrech named associate director

NASA announced Feb. 27 the appointment of Richard J. Gilbrech as associate director of John C. Stennis Space Center.

Gilbrech began his NASA career at Stennis in 1991. After holding several positions at the rocket engine testing facility and at NASA's Langley Research Center in Hampton, Va., Gilbrech was named director at Stennis in January 2006.

He served in that position until August 2007, when he was appointed associate administrator for NASA's Exploration Systems Mission Directorate, the division charged with designing the agency's next generation of manned spacecraft.

Last November, Gilbrech announced his retirement from that headquarters post. With the new appointment, Gilbrech will return to Stennis in early May.

"Rick's experience and devotion to NASA will certainly prove to be invaluable to Stennis and the agency," Stennis Director Gene Goldman said. "I solicit your support in welcoming Rick back to the Stennis family."

Stennis hosts NASA Day at the Capitol

Representatives from NASA's John C. Stennis Space Center visited Jackson on Thursday, Feb. 19, to meet with state legislators as part of NASA Day at the Capitol in Mississippi.

Astronaut Rex Walheim addresses Mississippi legislators, accompanied by Stennis Director Gene Goldman (left) and NASA's Shared Services Center Director Rick Arbuthnot.

Astronaut Rex Walheim, a veteran of two space shuttle missions, joined Stennis representatives in thanking Mississippi legislators for continued support of NASA. Highlighted during the event was the important role of Stennis in the past, present and future of America's space program, and its positive effect on Mississippi's economy and quality of life.

For Mississippi legislators, Stennis displayed exhibits highlighting the center's role in the future of space exploration. Models of the Ares I and Ares V rockets also were displayed.

"These are exciting days for NASA and Stennis Space Center," Stennis Director Gene Goldman said. "The State of Mississippi has been a staunch supporter of Stennis Space Center since it was established almost five decades ago, and that support remains as strong today as ever."

Aerospace panel visits Stennis

Members of the NASA Aerospace Safety Advisory Panel visited Stennis Space Center on March 5 to receive briefings regarding ongoing work and to tour facilities at the rocket engine testing site. At right, panel members stand in front of an RS-68 rocket engine in the Pratt & Whitney Rocketdyne engine assembly building at Stennis. Established after the Apollo I launch pad fire in 1967, the panel is responsible for evaluating NASA's safety performance and advising the agency on ways to improve in that area. The nine-member panel is chaired by Vice Admiral Joe Dyer, USN (Ret). Information about the NASA panel is available at http://www.hq.nasa.gov/office/oer/asap/index.html.

From the desk of

Gene Goldman

Director
Stennis Space Center

The Stennis team has just completed a significant series of tests for the Space Shuttle Program, providing crucial data to be used in resolving the current flow control valve cracking issue that delayed the launch of Discovery on the STS-119 mission.

The E Complex, often maligned, frequently challenged, always reactive, once again validated the vision that brought it into existence. Though it's a complex facility of tankage and pipe, its soul is the people who test there and those who support the testing. Its verities embody what Stennis should represent.

Responsive. Less than a week after the program's request for particle velocity data, tests were being run. The team worked extended hours to design, configure, activate and operate a test system to accomplish the desired requirements through more than 230 runs.

Cooperative. In addition to multiple organizations across the center interacting collectively, the team coordinated with Marshall Space Flight Center and Johnson Space Center to define requirements. Data was shared near real-time with JSC, Glenn Research Center and MSFC personnel as results were analyzed. Nearly every Stennis Space Center organization and contractor was involved in some facet of testing or support.

Communication. Probably the most important element in this achievement was the extra effort by all involved to assure key information was conveyed to inter- and intra-center members. Multishift and multicenter work requires extensive coordination. This skill is the most frequently identified and forgotten ingredient for success.

Dedication. The team worked tremendous hours to complete the test series, and every center group involved supported all needs. With a goal in sight, they also assured safety was foremost as members tired. Care, concern and support for each other was visible in all.

These characteristics are always evident in successful endeavors. Yet, when pressure isn't a factor, we often forget them. John Stealey of the Engineering & Test Directorate said what others have echoed, "We don't idle well." We seem to need urgency. Let's be demonstrative of these traits, even "at idle," in every part of our operation, regardless of organization or role. There are worse credos to live by!

Congratulations, and thanks to every person who had any part in this success!

Dream big; work harder.

Stennis director delivers J-2X model to Mississippi leader

Stennis Space Center Director Gene Goldman visits with Mississippi Gov. Haley Barbour during NASA Day at the Capitol activities on Feb. 19. During the visit, Goldman presented the governor with a model of the J-2X rocket engine currently in development. Stennis engineers did early component testing for the new engine. The facility also has been charged with testing the engine once it is completed. The J-2X is designed to help power the Ares rockets that are the centerpiece of NASA's Constellation Program. The Ares crew and cargo launch vehicles will carry humans back to the moon and possibly beyond.

FULFILLING NASA'S EXPLORATION MISSION

Work proceeds on Ares I rocket

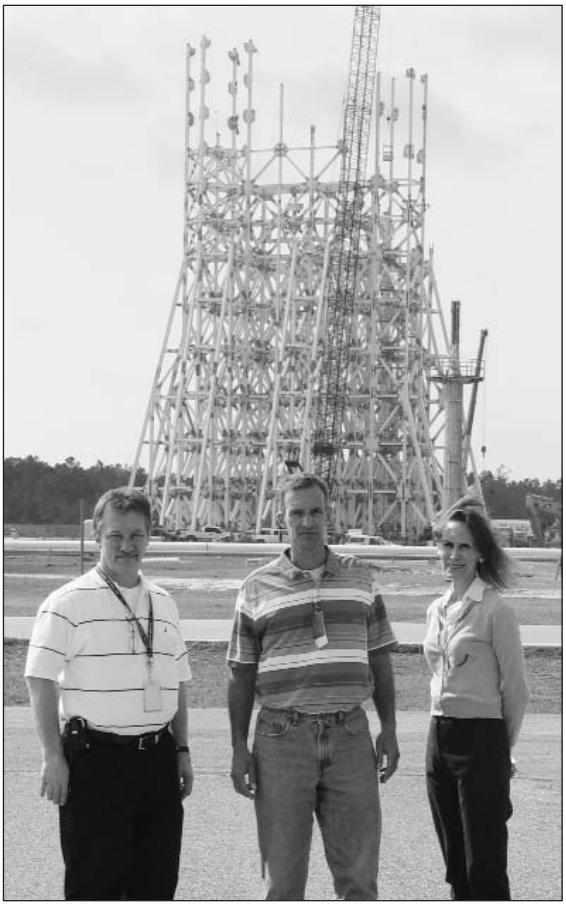
As engineers at Stennis Space Center continue to prepare for critical testing of the next-generation J-2X engine that will help send humans back to the moon and possibly beyond, workers elsewhere are proceeding with development of the rocket the engine will power.

Key tests were conducted in the first two months of the year, groundwork for the Ares I-X test flight scheduled at NASA's Kennedy Space Center in Florida during the second half of 2009.

NASA's Constellation Program is built around two new rockets – the Ares I crew launch vehicle and the Ares V cargo launch vehicle. The Ares I-X launch later this year will be the first test of the rocket hardware that will carry humans and supplies to the International Space Station and to the moon after the space shuttles are retired by the end of 2010.

Both Ares rockets will be powered, in part, by the new J-2X engine in development. In 2008, Stennis engineers provided critical early component testing for others to use in building the new engine.

Now, Stennis engineers are modifying the facility's A-1 Test Stand and building the new A-3 Test Stand for testing the full J-2X engine. The A-3 stand will be used for high-altitude testing, simulating heights up to 100,000 feet.



The Innovative Partnerships Program office at Stennis Space Center recently hosted Jim Stegeman, NASA's Space Operations Mission Directorate representative for the Small Business Innovation Research Program. Stegeman's visit offered Stennis leaders a chance to discuss facility technology needs that could be met through the SBIR Program. Above (l to r), Stegeman stands in front of the A-3 Test Stand under construction with Ray Bryant, SBIR technology infusion manager at Stennis. and Ramona Travis, Innovative Partnerships Program manager at Stennis. The A-3 stand will be used to conduct high-altitude testing of the J-2X engine now in development.

Full testing of the new engine is scheduled to begin in 2011. There is considerable work to do before then – at Stennis and elsewhere.

The space shuttle uses four-segment boosters that are recovered for reuse. Ares I will use five-segment solid rocket boosters that will move faster and fall from a higher altitude than the shuttle boosters. However, the boosters still need to be recovered for reuse. To that end, engineers will depend on a parachute recovery system that includes a pilot chute, a drogue (funnel-shaped) chute and three main chutes. The parachutes are designed to deploy in stages to allow the boosters to return to Earth intact.

On Jan. 29, Alliant Techsystems successfully simulated the separation that will follow the first stage flight of Ares I-X.

Just one month later, on Feb. 28, NASA and industry engineers successfully completed the second test drop of a drogue parachute for the Ares I rocket. Dropped with a 50,000-pound load from 25,000 feet, the 68-foot-diameter parachute functioned properly, and the attached hardware landed safely.

Even as that work proceeds at testing grounds, Kennedy Space Center engineers report upper sections of the Ares I-X test rocket are beginning to take shape.

The test article consists of a single space shuttle solid rocket booster, topped by a dummy upper stage and a mock-up of the Orion service module, command module and launch abort system. Orion is the crew exploration vehicle that will be lifted into space by Ares I and subsequently carry astronauts to the space station or the moon.

Kennedy engineers are assembling the hardware for the upcoming test. The initial Ares I-X launch will be powered for about two minutes and will climb about 25 miles high. The test is designed to answer basic questions about stability and control of the Orion stack during the first stage firing.

The first lunar landing mission of the Constellation Program is projected for 2020.

Stennis addresses space shuttle flight issue

E Complex tests provide key data

When NASA's call went out Jan. 30 for Stennis Space Center engineers to assist in testing a critical space shuttle flight issue, facility workers wasted no time in getting started.

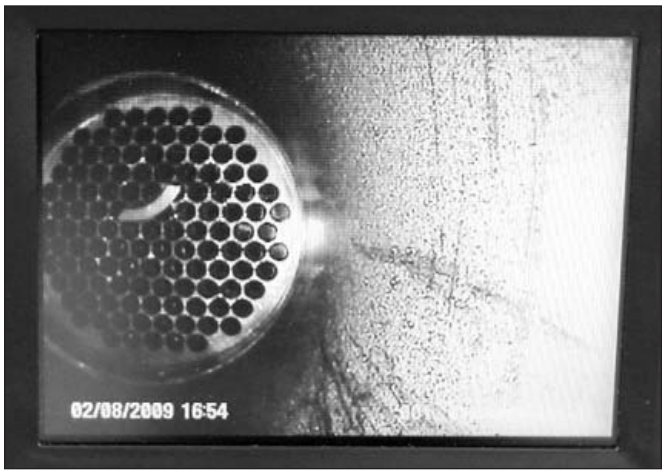
By Feb. 6, Stennis engineers had been briefed on testing needs, procured necessary materials, assembled the required test configuration and begun activation flows. Testing began the following day.

It continued for three weeks as engineers conducted almost 200 velocity and damage tests on a space shuttle flow control valve. Data received from the tests was instrumental in NASA's decision to OK launch of space shuttle Discovery on March 11.

The need for shuttle flow control valve testing arose when one of three such valves malfunctioned during the launch of shuttle Endeavour last November. It was discovered the valve had cracked and sent a piece of debris into the shuttle propellant systems. NASA officials became concerned debris from a future incident might rupture gaseous hydrogen tubing. The call went out to three agency centers to begin testing and analysis of the flow valve.

At Stennis, engineers were asked to test the maximum velocity a similar piece of broken debris might attain and the maximum damage it could cause. To that end, they configured tubing simulating the shuttle's external tank gaseous hydrogen pressurization system. The piping configuration included mounted high-speed cameras to gauge the velocity of test-fired debris particles.

The velocity of the test-fired particles were measured at three points and fed into models generated at other NASA centers. Stennis engineers also gathered information on what kind of damage a broken particle could cause. The resulting data was used to determine whether Discovery should fly or not.



An in-system camera shows a shuttle flow control valve particle resting on the launch screen before being test fired by Stennis Space Center engineers.

Amy Rice (left), an aerospace technologist in the Stennis Office of Safety and Mission Assurance, and Rosa Obregon, an aerospace technologist in the Stennis Engineering & Test Directorate, monitor computers during space shuttle flow control valve testing in the E Complex.

Upon completion of the initial round, Stennis engineers began configuring a model to test the orbiter side of the gaseous hydrogen pressurization system. However, it was determined that testing using that configuration was not immediately needed. The orbiter configuration remains in place in case additional testing is necessary as NASA engineers study a possible redesign of the flow valve.

The flow valve testing marks the fourth time since the Columbia tragedy that Stennis engineers have been asked to address a shuttle flight issue. Their performance in those instances – and in the latest round of testing – illustrate the capabilities of the center and its engineers, said Nickey Raines, deputy chief engineer in the Stennis Engineering & Test Directorate.

"We're one of the few facilities capable of doing this type of work," he said. "The E Complex was built to be adaptable, and we have engineers who understand the work, who are plugged in at all the right places."

Kerry Klein, chief of operations in the Stennis Engineering & Test Directorate, praised the multi-center collaboration during the latest shuttle issue testing. He also cited the coordinated effort among NASA and the local onsite Stennis support contractors.

"Teams have worked long hours, including nights and weekends, to help obtain this data," he said. "The dedication of the people at Stennis cannot be overstated."

NASA project aids Gulf Coast

Following the devastating impact of the 2005 hurricane season, state and local government leaders along the Gulf of Mexico needed to improve coastal management practices. However, they lacked the data necessary to make informed policy and project decisions.

In 2004, the Gulf of Mexico Alliance had been formalized – a partnership between the five Gulf states to increase regional collaboration with local, state and federal entities. The federal government supported GOMA through the interagency Ocean Action Plan. NASA's Earth Science Division requested Stennis Space Center to focus its research on GOMA-related issues.

In response, Stennis scientists partnered with GOMA and the Mobile Bay National Estuary Program to conduct land-use and land-cover research around Mobile Bay, Ala. NASA provided several science data and data products that will benefit various decision-making groups, as well as provide socioeconomic benefits to the Gulf of Mexico non-science community.

"The Mobile Bay project can be considered a success for NASA's Applied Sciences Program and the Mobile Bay National Estuary Program," said Anne Peek, Stennis Applied Science and Technology Project Office chief. "The collaboration resulted in improving the end-users' capacity to utilize space-based observations in everyday decisionmaking."

Jean Ellis spent about 18 months working at Stennis under the Intergovernmental Personnel Act through Texas A&M University in College Station, Texas, and teamed with Joseph Spruce of Science Systems and Applications Inc. at Stennis to lead the Mobile Bay project. "Our goal is to customize NASA data for the decisionmaker so it is usable by them to influence policy decisions," Ellis explained. "That's critical because the agencies in question usually do not have the capabilities to do the research on their own. So, we do the research for them. They use it to make policy."

That is exactly what happened with the NASA project in Mobile Bay. Mobile Bay is a critical ecological and economic area for the Gulf of Mexico region and the nation. It was designated an estuary of "national significance" in 1996, and receives the fourth-largest freshwater inflow in the United States. The estuary provides a critical habitat for commercially and recreationally important fish species.

That makes NASA land-use and land-cover data products a key issue because changes in the estuarine environment could have a crippling impact, Ellis said. "For instance, if you increase the flow of sediment into the area, you can cause an imbalance in the system that may reduce submerged aquatic vegetation," she said. "Without the vegetation, many fish species lose their nursery. The end result is that there are no fish."

To help understand how the land use and land cover in the Mobile Bay area had changed – and what trends were continuing – researchers analyzed Landsat satellite data from 1974 to present. They produced a series of land-use and land-cover maps and statistics to quantify the historical changes.

The project results serve as critical tools for urban and land-use planning for Mobile Bay leaders, Ellis said. The maps and statistics also help identify potential research projects that can further benefit the area. In addition, the project results will be available on the Internet to allow broader access and use by the public and scientists alike.

Mississippi senator's staff members visit Stennis Space Center

Two staff members for Sen. Roger Wicker, R-Miss., recently visited Stennis Space Center, to receive information on ongoing work and tour site facilities. Staff members Morgan Shands (second from left) and Jennifer Schmidt met with Stennis Director Gene Goldman, were briefed on Applied Science and Technology Project Office activities and toured several facilities, including the Pratt & Whitney Rocketdyne engine assembly building. At that facility, the pair were hosted by PWR Site Director Jeffrey Wright (left) and PWR Assembly Operations Manager Jeff Johnson (right).

NASA honors Stennis employees

Thirteen 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.

Honorees were presented awards by Stennis Director Gene Goldman (standing, far right) during a Feb. 5 ceremony at the rocket engine testing facility. In addition, they traveled to Kennedy Space Center in Florida, to tour the facility and witness the March 11 launch of space shuttle Discovery on NASA's STS-119 mission.

The SFA Award is one of the highest honors presented by NASA employees. Those most recently recognized for their contributions to the nation's space program were: (standing, l to r) Wilmer DeDeaux (Lockheed Martin Enterprise Services & Solutions), Warren "Stan" Hogue (Pratt & Whitney Rocketdyne), Ramon Walker (Jacobs Technology Facility Operating Services Contract), Bruce Farner (NASA), James Sever (Computer Sciences Corp.), Stacy Smith (Jacobs Technology NASA Test Operations Group), Robert McLain (Applied Geo Technologies Inc.); (seated, l to r) Carolyn Kennedy (NASA), Ray Alfred (PWR), Tim Lorenz (PWR), Brenda "Cricket" Reynolds (Jacobs FOSC) and Billy Davis (Jacobs NTOG). SFA honoree Deborah Norton (NASA) is not pictured.

Stennis chosen to test shuttle engines

Editor's Note: *NASA's John C. Stennis Space Center has played a pivotal role in the success of the nation's space program. Each month, Lagniappe looks back on important moments in the center's history.*

On March 1, 1971, NASA made an announcement that would change the history of its rocket test facility in south Mississippi. The decision was made for the Mississippi Test Facility to test and flight certify the engines for NASA's new reusable launch vehicle – the space shuttle.

NASA's announcement came as the Apollo Program was nearing its end. For five years, the Mississippi Test Facility had tested engines for the first and second stages of the Saturn V rockets that carried humans to the moon. Now, the end of the Apollo Program marked a period of uncertainty for the Mississippi Test Facility. It was not yet a full NASA center, falling under the command of the George C. Marshall Space Flight Center in Huntsville, Ala.

The decision to test the space shuttle engines in Hancock County breathed new life into the test facility. Site leaders looked to the future and laid the groundwork for the Mississippi Test Facility to become the multi-agency center it is today.

In 1971, the space shuttle main engine was the most advanced liquid-fueled rocket engine built. Produced by Rocketdyne under contract to Marshall Space Flight Center, the shuttle engines were the nation's first reusable space booster engines.

Visitors from Huntsville, Ala., view the first space shuttle main engine delivered to the National Space Technology Laboratories, now NASA's John C. Stennis Space Center. The first static test-firing of a space shuttle main engine was conducted on the A-1 Test Stand at Stennis on May 19, 1975.

March also marks the anniversary of the unveiling of the first space shuttle main engine in Canoga Park, Calif. Assembly of that engine began on Feb. 25, 1975, and was completed on March 13, 1975 – three weeks ahead of schedule. The engine was shipped for testing to Mississippi to the then-renamed National Space Technology Laboratories, now John C. Stennis Space Center.

Since then, NASA has flown more than 120 space shuttle missions, each powered by three main engines tested at Stennis Space Center.

‘Never again’ – what you do matters

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

Few stories illustrate this year’s Holocaust Remembrance theme more than the story of Miep Gies – who turned 100 years old this February. While millions of people all around the world know about Anne Frank, far fewer are aware of Miep Gies, the woman who sustained Frank and her family in hiding during World War II. Were it not for Gies, the world never would have met Anne Frank.

Moral courage and modesty were at the heart of Gies’ character. For more than two years, she risked her own life daily to protect and care for the Franks and four of their friends hiding from the Nazis. Gies illegally provided them with food, clothing and books during their years in hiding.

She knowingly faced great personal risk. After two years of hiding in her attic, the Franks and their friends were discovered and taken away to a concentration camp. After the arrest, Gies gathered up Anne Frank’s scattered papers and notebooks. She locked them – unread – in a desk drawer to await the teenager’s return.

Anne Frank died of typhus in the German concentration camp seven months after her arrest – and just two weeks later, British and Canadian troops liberated the camp.

Anne Frank’s father, Otto, returned – the only survivor among the eight people who hid in the attic. Gies gave the collection of his daughter’s notes to Otto. After the war, Gies worked for Otto Frank as he compiled and edited the diary, then devoted herself to talking about the diary and answering letters from around the world.

You can read more about this extraordinary woman at: http://www.miepgies.org.

Hail & Farewell

NASA bids farewell to the following:

Joseph Ladner	Contract Specialist Office of Procurement

And welcomes the following:

Mark Femal	Computer Scientist Center Operations Directorate

@ Stennis

What do you consider to be the greatest benefit of ongoing space exploration?

Editor’s Note: *@ Stennis is a monthly feature highlighting the views and opinions of Stennis Space Center employees.*

“It pushes our nation to develop technologically. It keeps us in a leadership role. And it produces a number of useful side benefits.”

Daniel Allgood, NASA

“I think the greatest benefit is how it helps further science research, as well as extend the understanding of space.”

Taylor Davie
Applied Geo Technologies Inc.

“Medical research. It also maintains our pioneering spirit and our role as a leader, and it offers a variety of benefits to daily life.”

Pat Gaspard, Jacobs FOSC

“It keeps us on the cutting edge – technologically, as well as in terms of research and development and manufacturing processes.”

Don Skinner, Jacobs NTOG

“I think the greatest benefit is the opportunity it offers to be a part of something bigger than ourselves, as well as the chance to go back to the moon.”

Karen Vander, NASA

Teams ready for robotics tourney

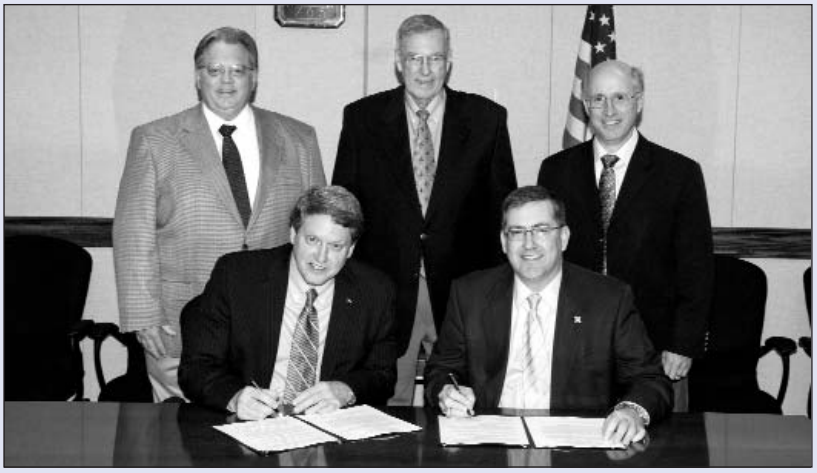
High school teams from several states will gather in New Orleans on March 19-21 to compete in the 2009 Bayou Regional FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition.

Twenty-two teams hail from Louisiana or Mississippi schools and are closely supported by personnel from NASA's John C. Stennis Space Center. A total of 18 Stennis employees are serving as mentors to Louisiana and Mississippi teams, which spent six weeks early this year building robots that will compete in the annual tournament at Lakefront Arena on the University of New Orleans campus. The all-day event is free and open to the public.

Mentors for 2009 FIRST Robotics teams are: Bo Clarke, James Cluff, Scott Olive, Wendy Holladay, Karma Snyder, Debra Rushing, Brennan Sanders, David Lorance, Mak Kersanac, Jim Barnett, John Schmalzel, all with NASA; Jennifer Melton and Tim Rabon, both with Computer Sciences Corp.; Jack Higgs and Greg Eisman, both at the National Data Buoy Center with Science Applications International Corp.; Dale Bibee and David Lalejini, both with Naval Research Laboratory; Allen Forsman with Pratt & Whitney Rocketdyne; and Dean Noel with Bastion Tech.

Student Virtual Symposium

Stennis Space Center personnel recently hosted a NASA Explorer School Virtual Student Symposium, in which pupils at Lillie Burney Elementary School in Hattiesburg, Miss., presented results of their project on the possibility of growing plants on Mars. The students presented via NASA's Digital Learning Network to Stennis employees (l to r) Karma Snyder, NASA project manager; Deborah Noel, NES project assistant; Steve Culivan, aerospace education specialist; and Kelly Witherspoon, NASA Digital Learning Network coordinator.



Stennis signs agreement with MSU

Stennis Space Center Director Gene Goldman (seated, left) and Mississippi State University Vice President Kirk Schulz sign a Jan. 22 agreement for the Northern Gulf Institute to remain onsite and proceed with construction of a new building. MSU is the lead institution operating NGI, which works with the National Oceanographic and Atmospheric Administration at Stennis to conduct marine and atmospheric studies for the benefit of coastal communities. Goldman and Schulz were joined at the signing by (standing, l to r) Ron Magee, assistant to the Stennis center operations director; Glade Woods, NGI co-director; and David Shaw, NGI co-director.

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
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National Aeronautics and
Space Administration

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Stennis Space Center, MS 39529

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