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LAGNIAPPE

John C. Stennis Space Center

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2015 Gala

Fred Haise receives Roy S. Estess Award

Al Watkins (l), former president of Partners for Stennis and Mark Schloegel (r), current president of Partners for Stennis, present Apollo 13 astronaut Fred Haise with the Roy S. Estess Public Service Leadership Award during the Stennis Space Center Gala event April 18 at Hollywood Casino Gulf Coast in Bay St. Louis. The annual Gala is sponsored by Partners for Stennis to highlight the center and its work. The public service leadership award commemorates Estess, a late Stennis director, and the exceptionally high standards of public service he exemplified. It is presented to community leaders whose career contributions and record of volunteerism reflect those values. Haise, a native of Biloxi, served as the lunar module pilot during the Apollo 13 mission. He left NASA in 1979 and served with the Grumman Space Corp. until his retirement in 1996. In retirement, Haise continues to impact the community through motivational speeches,and service as a counselor for child burn victims. He also has been an integral part of the creation and success of the INFINITY Science Center at Stennis Space Center.

Stennis honors former center director Hlass

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"Our strength as a center is due to our flexibility, exceptional workforce and the ability to act 'as one' in times of change and uncertainty."

From the desk of
John Bailey
Deputy Director, Stennis Engineering and Test Directorate

It's that time of year. We just "changed" from winter to spring. Flowers are beginning to bloom, the trees and grass are green, and summer vacations are right around the corner. Before you know it, we will "change" from spring to summer. Change seems like such a simple thing, but in reality, it is very complex and causes many different actions/reactions in people. We have all heard the saying – "The one thing that is constant is change." Change, simply defined, means "to become different." It seems simple.

NASA and Stennis Space Center are no different than many other organizations throughout the world. We live in a dynamic environment with constant change. NASA has transitioned from the Apollo era to the space shuttle era, and we are now entering the Space Launch System (SLS) era that will lead our nation on a pioneering journey to Mars. Stennis has, and will, continue to "change" to meet this challenge. Sometimes, change is gradual and takes place over long periods of time. Other times, change happens abruptly and unexpectedly. Regardless, there is one thing that is certain – Stennis has a proven history of excelling during times of "change!"

Stennis has been through many changes over the past several years: Hurricane Katrina, the end of the space shuttle main engine testing, center reorganizations and leadership changes, the transition to a new test model in the test complex, increased commercial rocket component/engine testing, and many large construction of facilities projects throughout the center, just to name a few. More recently, there was the realignment that combined the Projects Directorate into the Engineering and Test Directorate and created a center-level strategic business function. Currently, there are numerous "changes" taking place. We are preparing the B-2 Test Stand for SLS stage testing; getting prepared to resume testing of the RS-25 engine for the SLS; executing major infrastructure upgrades in the test complex (like the high-pressure industrial water project); preparing for numerous test projects in the E Test Complex; actively working Stennis' restricted airspace expansion; and preparing for the transition of three major support contracts. The point is, we live in a time of constant "change."

People react differently to change. For some, change causes fear, stress and anxiety, while others view change as an opportunity to embrace something new and exciting, and look for opportunities to thrive. Regardless of how one reacts to "change," as a center, we must work together as "one" in order to be successful in such a dynamic environment. I believe our strength as a center is due to our flexibility, exceptional workforce and the ability to act "as one" in times of change and uncertainty.

In order to be successful and excel in this dynamic environment that we find ourselves in today, we must embrace the "change" and pull together as "one!"

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FULFILLING NASA'S EXPLORATION MISSION

Milestone: Stennis installs 96-inch valve

Stennis Space Center employees installed a 96-inch valve March 26 as part of an ongoing project to upgrade the high-pressure industrial water system that serves the site's large rocket engine test stands. When completed, the upgraded system will have the capacity to flow 335,000 gallons of water a minute at 300 psi, which is needed during rocket engine tests. Water is a critical element for rocket engine testing. At Stennis, engines are anchored in place on large test stands and fired just as they are during an actual space flight. The fire and exhaust from the test is redirected out of the stand by a large flame trench. A water deluge system directs thousands of gallons of water needed to cool the exhaust. Water also must be available on the stand and to the adjacent barges – which supply cryogenic rocket propellants to fuel the engine during the test – for fire suppression in the event of a mishap. The original water system was installed in the 1960s; the upgrade will ensure and enhance its continued capability. The system will serve the A-1 Test Stand during testing of RS-25 rocket engines that will be used on NASA's new Space Launch System (SLS). It also will be critical for testing of the SLS core stage on the B-2 Test Stand. Core-stage testing will involve mounting an actual flight stage on the stand and simultaneously firing four RS-25 rocket engines, producing more than 2 million pounds of thrust. In addition to others uses, about 87,000 gallons of water a minute will be used during core-stage testing for vibro-acoustic suppression, essentially creating a curtain of water around the engines to dampen the loudness of the test and protect the core stage from noise damage. The recently installed valve represents a milestone for the water system project. Weighing in at 160,000 pounds and standing 30 feet tall on end, it was the largest product ever manufactured by Kennedy Valve in Elmira, N.Y. Once completed, the valve was transported by truck to Stennis, where it was lifted and placed by crane.

FULFILLING NASA'S EXPLORATION MISSION

NASA in the News

New Horizons nears Pluto

NASA's New Horizons spacecraft is three months from returning to humanity the first-ever close up images and scientific observations of distant Pluto and its system of large and small moons. The fastest spacecraft ever launched, New Horizons has traveled a longer time and farther away – more than nine years and 3 billion miles – than any space mission in history to reach its primary target. Its flyby of Pluto and its system of moons on July 14 will complete the initial reconnaissance of the classical solar system and open the door to a new "third" zone of mysterious small planets and planetary building blocks in the Kuiper Belt, a large area with numerous objects beyond Neptune's orbit. For more, visit: http://pluto.jhuapl.edu and http://www.nasa.gov/newhorizons.

NASA selects business, research projects

NASA has selected 149 research and technology proposals for further development through its Small Business Innovation Research (SBIR) and Small Technology Transfer (STTR) Programs. Five selected proposals involve technology being administered by the Office of the Chief Technologist at NASA's Stennis Space Center. The STTR Phase II projects affiliated with Stennis are:

- "Compact Energy Conversion Module" by Extreme Diagnostics Inc in Boulder, Colo., and The Regents of the University of Michigan in Ann Arbor, Mich.
- "Heat Harvesting by Artificial Muscles" by Lynntech, Inc. in College Station, Texas, and the University of Texas at Dallas.

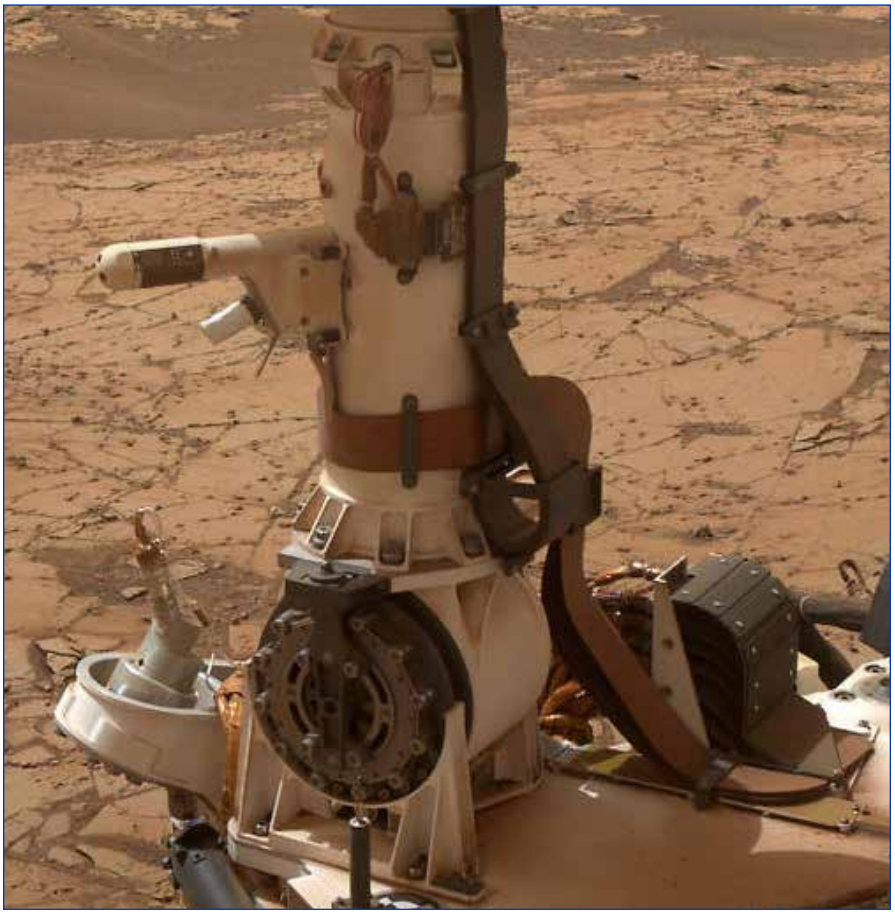
The STTR Phase II projects affiliated with Stennis are:

- "Hydrogen Wave Heater for Nuclear Propulsion Component Testing" by ACENT Laboratories, LLC in Manorville, N.Y.
- "Fabrication and Testing of Nuclear-Thermal Propulsion Ground Test Hardware, Phase II," developed by Ultramet in Pacoima, Calif.
- "A Geospatial Decision Support System Toolkit," developed by Applied Geosolutions, LLC in Newmarket, N.H.

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

Curiosity's weather data bolster case for brine

Martian weather and soil conditions that NASA's Curiosity rover has measured, together with a type of salt found in Martian soil, could put liquid brine in the soil at night. Perchlorate identified in Martian soil has properties of absorbing water vapor from the atmosphere and lowering the freezing temperature of water. This has been proposed for years as a mechanism for possible existence of transient liquid brines at higher latitudes on modern Mars, despite the Red Planet's cold and dry conditions. New calculations indicate conditions at the rover's near-equatorial location were favorable for small quantities of brine to form during some nights throughout the year, drying out again after sunrise. Conditions should be even more favorable at higher latitudes. In the 12 months following its August 2012 landing, Curiosity has found evidence for ancient streambeds and a lakebed environment more than 3 billion years ago that offered conditions favorable for microbial life. Now, the rover is examining a layered mountain inside Gale Crater for evidence about how ancient environmental conditions evolved. This photo shows Curiosity's Rover Environmental Monitoring Station (REMS), which has provided information about air pressure, relative humidity, air temperature, ground temperature, wind and ultraviolet radiation in all Martian seasons and at all times of day or night. For more, visit: http://www.nasa.gov/msl and http://mars.jpl.nasa.gov/msl/



Stennis honors former Director Hlass

Stennis Space Center Director Rick Gilbrech (above photo, right) presents a commemorative plaque to fomer site Director Jerry Hlass during a ceremony in his honor April 8. Stennis recognized Hlass' contributions to the center by renaming an onsite road in his honor (right photo). Hlass first visited Stennis Space Center as a NASA engineer to monitor site construction in the 1960s. He returned to south Mississippi in 1976 as manager of the then-National Space Technology Laboratories. He is credited with leading the facility through critical years of development and growth. His efforts culminated in 1988, when the site was renamed in honor of then-Mississippi Sen. John C. Stennis and granted independent status as a NASA center. Hlass departed as director of Stennis Space Center in 1989 when he was appointed to a NASA Headquarters position. He retired from NASA shortly after and settled in Long Beach. The April 8 ceremony featured a video highlighting Hlass' impact at Stennis and recollections by Stennis and community leaders, including Gilbrech and former Stennis Director Patrick Scheuermann.

Apollo 16 astronaut recounts space adventure

Apollo 16 astronaut Charles Duke speaks to NASA employees at Stennis Space Center during his onsite visit April 9. Duke visited Stennis to tape an interview segment for an area television show. Duke was one of 19 astronauts selected by NASA in April 1966. Duke served as lunar module pilot of Apollo 16, in April 1972. Duke and fellow astronaut John Young spent a record 71 hours and 14 minutes on the surface of the moon. In three subsequent excursions onto the lunar surface, they each logged 20 hours and 15 minutes in extravehicular activities, involving the emplacement and activation of scientific equipment and experiments, the collection of nearly 213 pounds of rock and soil samples, and the evaluation and use of Rover-2 over the roughest surface yet encountered on the moon. Age 36 at the time of the Apollo 16 mission, Duke was the 10th and youngest man ever to walk on the moon. He also served as backup lunar module pilot for Fred Haise, a Biloxi native, on Apollo 13. Duke reunited with Haise at Kennedy Space Center the week after his Stennis visit to mark the 45th anniversary of the Apollo 13 mission, which captured the attention of the nation as the crew survived an on-board oxygen tank explosion and perilous journey back to Earth.

1965 – Test facility preparations under way

Note: For more than 50 years, NASA's John C. Stennis Space Center has played a pivotal role in the success of the nation's space program. This month's Lagniappe provides a glimpse into the history of the south Mississippi rocket engine test center.

A 1965 photo shows final construction of the bascule bridge still in use at Stennis Space Center.

In April 1965, five years before Apollo 13 astronaut Fred Haise orbited Earth in April 1970, the then-Mississippi Test Operations (MTO) site was rapidly making preparations for Apollo Program missions. Haise would be selected a NASA astronaut in 1966. (On the 11th of this month, the Biloxi, Miss., native Haise celebrated the 45th anniversary of his Apollo 13 mission.)

"I was pleased," Haise said about being selected an astronaut in a 2014 interview on NASA.gov. "It was a continuation of my career as a NASA research pilot and a transfer from the NASA Flight Research Center to the Manned Spacecraft Center."

While Haise was a research pilot at the NASA Flight Research Center in Edwards, Calif., in 1965, MTO's activities made noticeable changes to the facility and surrounding area. Construction contracts worth more than $100 million were in effect at the static-test facility. The contracts involved 30 projects in various stages of construction. About 20 local and national construction contractors held the prime contracts for those projects, with subcontracts involving 200 to 300 other companies.

Besides the important role of the activation of test stands and support facilities at MTO for NASA and contractor personnel, 29 construction contracts worth more than $15 million had been completed since building started almost two years earlier. The bascule bridge, which crossed the main canal connecting the East Pearl River to the network of canals within the test area, was turned over to NASA as the most recent completed project during the latter part of March 1965. The double-leaf bascule bridge, located east of the lock in the southwest corner of the area, was built with four lanes for vehicular traffic to provide access from the south entrance. It was 200 feet long with a 110-foot horizontal clearance, two structural leaves and concrete piers containing machinery for raising and lowering the leaves. A control house was erected on one pier.

During National Secretaries' Week in April 1965, MTO took a break from activities to reflect on the secretary. A stenographer, typist, clerk, receptionist or whatever title, the secretary played an important role at the test facility. With the necessity of keeping complete records of daily transactions and communicating by letter and telephone with others, the secretary was considered a professional.

More than 200 women were employed by NASA, General Electric, North American, Boeing, the Corps of Engineers and construction contractors in various capacities at the facility. National Secretaries' Week gave the boss an opportunity to say to the secretary, "Thanks for a job well done."

The NASA road sign listed stage and support contractors at the north gate.

Office of Diversity and Equal Opportunity

Generations must come together in workplace

The following article was written by Gina H. Ladner in the Stennis Center Operations Directorate.

Multiple generations have always worked side by side in the workplace. The multiple generations include: (1) the younger generation of newcomers, (2) the established middle generation and (3) the older generation who are 30 or 40 years into their careers. Currently, the modern workplace consists of Baby Boomers, Generation Xers and Generation Yers, or Millennials, coexisting in the same office. As more Baby Boomers work past retirement age and more Millennials enter the workforce, the differences in the values, communication styles and work habits of each generation becomes increasingly pronounced. Each of these distinct age groups come with their own generational differences, which challenge them to rise above their differences and think outside their comfort zone to tackle the workload together.

Baby Boomers, born between 1946 and 1964, are competitive and put in long hours. Generation Xers, born between 1965 and 1977, are more independent-minded and expect flexible scheduling. Generation Yers or Millennials, born in 1978 or later, like teamwork, feedback and technology. The key is to be able to effectively take advantage of the differences in values and expectations of each generation while being careful not to follow blanket stereotypes.

Communication-style differences between older and younger generations has almost become cliché. Baby Boomers and Generation Xers tend to prefer phone calls and emails to communicate, while Generation Yers sends text messages, tweets and instant messages with informal language and colloquialisms. Older workers are accustomed to communicating with coworkers with much more formality and may equate formality with respect. When not given the same formality, it may be misinterpreted as a lack of respect. Each group needs to make a concerted effort to communicate with their colleagues in the ways each person prefers. Bringing members of different generations together for face-to-face interaction can help break down barriers necessary for effective communication.

Older workers' experience is valuable but can also become an obstacle if they rely on a "this-is-the-way-it's-always-been-done" attitude that discourages new ideas. Younger workers' enthusiasm and willingness to try new things need to be encouraged but also guided. The younger workers may not have the perspective to understand all the risks and costs associated with their ideas. The pooling of both generations' strengths, rather than getting into a tug-of-war, is a win-win for all involved.

Cultural expectations differ between the generations. Younger workers tend to place a greater premium on a healthy work-life balance, whereas their older counterparts tend to sacrifice a lot of their personal time to the job. Everyone wants recognition for the work they do and feedback that is appropriate. Each generation needs to honor each person's contribution to the group and acknowledge each individual's need for affirmation. For an effective and harmonious work environment to occur in the multigenerational workforce, flexibility and openness on the part of every individual is critical.

Each generation brings their own set of strengths and cultural norms. A successful workplace should be a melting pot of different generations, personalities and talents all coming together toward a common goal.

Stennis spring sunrise

Spring is a beautiful season in the south, as this photo of a late March sunrise shows. Aerojet Rocketdyne employee Charles Gandy took the photo March 31 as the sun began its rise above the A-2 Test Stand at Stennis Space Center.

NASA partners to launch first-of-its-kind web app

NASA Stennis Space Center, the Naval Research Laboratory at Stennis and Texas A&M University at Galveston recently unveiled a first-of-its-kind web app to alert coastal residents of impending landings of bothersome Sargassum seaweed.

The first version of the Sargassum Early Advisory System (SEAS) web app detects Sargassum in the ocean using a satellite, forecasts its movement using an ocean model and virtual buoys, and alerts coastal residents of impending landings.

By tracking the approach of Sargassum, the new web app helps residents, businesses and local governments be better prepared to address seaweed issues. In 2014, the Gulf Coast was inundated with Sargassum, impacting everything from the fishing industry to tourism and local community life. So far in 2015, other regions are being hit hard, but there is a lot of Sargassum currently in the Gulf of Mexico.

Duane Armstrong addresses participants at ther 2015 Gulf Coast Sargassum Symposium in Texas.

"This project is a great example of NASA science and technology helping people in daily life," said Duane Armstrong, chief of NASA's Applied Science and Technology Projects at Stennis. "The techniques we developed are also going to help address other challenges, such as detecting ocean oil spills and monitoring oyster fisheries."

The app grew out of a prior project in which Texas A&M University of Galveston scientists developed a manual system for predicting Sargassum landings. Armstrong suggested that the process could be adapted into an app to provide this information to the Gulf Coast and other regions.

The SEAS app was unveiled during the 2015 Gulf Coast Sargassum Symposium in Galveston, Texas, on April 2-3. The conference drew more than 100 participants from five countries, representing a broad cross-section of people from scientists to business owners to state and local government representatives.

"The SEAS web app and the symposium received overwhelmingly positive feedback," Armstrong said. "It's a great tool to put in the hands of businesses and community leaders. There's been a lot of interest in it."

The app drew front-page coverage in the Houston Chronicle and was picked up by more than 70 media outlets, including major outlets such as National Public Radio and Telemundo. "This is a unique project that addresses a real problem," Armstrong explained. "Seaweed can inundate a coastline, piling several feet high and extending for miles. It can represent a real challenge for communities."

A benefit of the SEAS app is its availability; anyone can access it online at: sargassum.tamug.edu. In addition, the app costs almost nothing to operate and can be easily updated and enhanced, a process already under way.

Hail & Farewell

NASA bids farewell to the following:

William Graham	Physical Scientist	Engineering & Test Directorate
Wanda Solano	Electronics Engineer	Center Operations Directorate
Kim Guin	Management and Program Analyst	Office of the Chief Financial Officer
Keith Cognevich	Lead Information Technology Specialist	Center Operations Directorate

And welcomes the following:

Aster Pastoral	AST, Electrical Experimental Equipment	Engineering & Test Directorate
Janice Tasin	AST, Electrical Experimental Equipment	Engineering & Test Directorate
Kamili Shaw	Lead Aerospace Engineer	Safety & Mission Assurance Directorate