National Aeronautics and Space Administration

LAGNIAPPE

John C. Stennis Space Center

Volume 17 Issue 7 www.nasa.gov/centers/stennis July 2021

RS-25 Testing Continues at Stennis

See page 3

Here at Stennis Space Center, the opportunities for knowledge and research are endless. As a result, it can be a little confusing to find where to start.

No worries! Your friendly neighborhood Gator is here to help you – Ark!

At the back of this Lagniappe issue, on page 8, you can choose from a variety of links for different website resources. With so many resource links readily available at your fingertips (or claws for my scaly friends), you are sure to find answers to your questions or enough information to simply pique your interest.

Hoping to catch sight of the America's largest rocket testing facility and over 50 local, state, national, international, private and public companies, and agencies located inside its gates? Look no further than the Stennis Virtual Tour link, allowing you to view behind-the-scenes of John C. Stennis Space Center.

To see daily updates and how Stennis handled and is currently handling the pandemic, click on Stennis Emergency Management and NASA Coronavirus Response.

The Stennis Fact Sheets, NASA E-Book Downloads, and Stennis Artemis Resources pages are perfect for space-lovers looking to satisfy their need of knowledge. With a compilation of several links, these resources are sure to answer any questions you may have.

Are you, or your little one, looking for a more hands-on space learning experience? Lucky for you, I have you covered. Be sure to click on MARS 2020 STEM Toolkit, NASA STEM @ Home for Students, and How to Draw Artemis.

For a compilation of all the above and more, including podcasts and opportunities to be a scientist, follow the link labeled NASA at Home.

If these links are not enough to satisfy your never-ending need of knowledge and you are still searching for more, the NASA and Stennis websites - and their search function – is always available for your researching needs.

Lagniappe is published monthly by the Office of Communications at NASA's John C. Stennis Space Center.
Access monthly copies at: www.nasa.gov/centers/stennis/news/publications/index.html
Contact info – (phone) 228-688-3749; (email) ssc-pao@mail.nasa.gov; (mail) NASA OFFICE OF COMMUNICATIONS, Attn: LAGNIAPPE, Mail code IA00, Building 1100 Room 304, Stennis Space Center, MS 39529
Subscribe at: https://lists.nasa.gov/mailman/listinfo/stennis-space-center-lagniappe
Managing Editor – Lacy Thompson Editor – Kaylan Courteaux Staff Photographer – Danny Nowlin

NASA's MOON to MARS MISSION

NASA Conducts RS-25 Test Further Contributing to Artemis Moon Missions

NASA conducted a fifth RS-25 single-engine hot fire test July 14 as a continuation of its ongoing seven-part test series, supporting development and production of engines for the agency's Space Launch System (SLS) rocket for future missions to the Moon. Operators fired up the engine for more than eight minutes (500 seconds) on the A-1 Test Stand at Stennis Space Center, Mississippi, providing data to Aerojet Rocketdyne, the lead contractor for the SLS engines, as it produces engines for use after the first SLS flights. Four RS-25 engines, along with a pair of solid rocket boosters, will help power SLS at launch, firing simultaneously to generate a combined 1.6 million pounds of thrust at launch and 2 million pounds during ascent. With testing of RS-25 engines for the first four Artemis program missions to the Moon completed, operators are now focused on collecting data to demonstrate and verify various engine capabilities, evaluate new engine components manufactured with cutting-edge and cost-saving technologies, and reduce operational risk. During the July 14 test, the test team fired the engine at 111% of its original power level for a set duration of time, the same level that RS-25 engines are required to operate during launch, as well as 113%, which allowed operators to test a margin of safety. NASA is building SLS as the world's most powerful rocket to send the agency's Orion spacecraft to the Moon as part of Artemis missions that will land the first woman and the first person of color on the lunar surface. The agency is working towards launch of the Artemis I uncrewed flight test this year, paving the way for future flights with astronauts to explore the lunar surface and prepare for missions to Mars. RS-25 tests at Stennis are conducted by a combined team of NASA, Aerojet Rocketdyne and Syncom Space Services operators. Syncom Space Services is the prime contractor for Stennis facilities and operations.

A new NASA's Perseverance video (click here) shows how the rover captured the historic April 6, 2021 image of itself beside the Ingenuity Mars Helicopter. As a bonus, the rover's entry, descent, and landing microphone captured the sound of the arm's motors whirring during the process. Selfies allow engineers to check wear and tear on the rover. They also inspire a new generation of space enthusiasts. Many rover team members can cite a favorite image that sparked their interest in NASA. Perseverance's selfie came together with the help of a core group of about a dozen people, including rover drivers, engineers who ran tests at NASA's Jet Propulsion Laboratory, and operations engineers who developed the camera sequence, processed the images, and stitched them together. It took about a week to plot out all the required commands. Everyone was working on "Mars time" (a day on the Red Planet is 37 minutes longer than on Earth), which often means being awake in the middle of the night and catching up on sleep during the day.

NASA in the News

Public Names 'Moonikin' for NASA's Artemis I

"Commander Moonikin Campos" is the official name of the manikin launching on Artemis I, NASA's uncrewed flight test of the Space Launch System (SLS) rocket and Orion spacecraft around the Moon later this year. The Moonikin received its name as the result of a competitive bracket contest honoring NASA figures, programs, or astronomical objects. NASA received more than 300,000 votes. The name Campos is a dedication to Arturo Campos, a key player in bringing Apollo 13 safely back to Earth. The final bracket challenge was between Campos and Delos, a reference to the island where Apollo and Artemis were born, according to Greek mythology. The Moonikin is a male-bodied manikin previously used in Orion vibration tests. Campos will occupy the commander's seat inside and wear an Orion Crew Survival System suit– the same spacesuit that Artemis astronauts will use during launch, entry, and other dynamic phases of their missions. Data from the Moonikin's experience will help NASA protect astronauts during Artemis II.

NASA: Best Work Place in Federal Government

For the ninth consecutive year, the Partnership for Public Service has ranked NASA as the Best Place to Work in the Federal Government among large agencies and, new for 2020, has also ranked NASA No. 1 among large agencies for its response to the coronavirus (COVID-19) pandemic. The announced rankings reflect NASA's focus and dedication as it pursues missions, including sending humans further into space than ever. In 2020, the agency saw its highest employee satisfaction results since this index was developed. Best Places to Work in the Federal Government rankings are based on responses to the Office of Personnel Management's annual Federal Employee Viewpoint Survey from almost 624,800 employees at 482 federal agencies and offices. The Partnership for Public Service began publishing the rankings in 2003. To learn more about the NASA's Artemis missions on and around the Moon, click here. For the complete list of rankings, click here. For more information about NASA, click here.

Stennis News

NASA Software Release, Available for Business and Public Use

Many of NASA's computational innovations were developed to help explore space, but the public can download them for applications that benefit life here on Earth. The agency's latest software catalog has hundreds of popular programs, as well as more than 180 new ones, all available for free download.

"From operations here on Earth to missions to the Moon and Mars, software is integral to all that NASA does," said NASA Administrator Bill Nelson. "The good news is this technology is available to the public for free. The software suited for satellites, astronauts, engineers, and scientists as it is applied and adapted across industries and businesses is a testament to the extensive value NASA brings to the United States – and the world."

Containing more than 800 programs, the NASA software catalog features categories such as system testing, aeronautics, data and image processing, autonomous systems, and more. The software is also continuously updated in a searchable repository online.

The software catalog is a product of NASA's Technology Transfer program. For more information, visit: https://technology.nasa.gov

Faces of NASA: Deputy Program Manager Michele Beisler

Michelle Biesler, deputy program manager for the Rocket Propulsion Test Program Office at Stennis Space Center, was featured on Faces of NASA on July 25, 2021, as a part of the Pride Month Celebration.

"Growing up queer, I always felt different from those around me, and I had a lot of doubts about belonging. What I've learned about myself along the way is that I can actually overcome my doubts by appreciating my uniqueness, as well as realizing I'm not that different from other people I meet. Sometimes it's rough. Sometimes the doubts seem true. But my secret that I've focused on is if I don't feel like I can control something in the world around me, I can always control how I show up. I can choose to show up with kindness, compassion, and focus on creating a safe space for others to belong. I've noticed that the more I choose those positive kinds of attitudes, people really respond to it. It really helps me be more confident in what I have to offer and that I can make a positive difference in the world!" To learn more, click here.

NASA Mechanical Operations Engineer Discovers the Value of Teamwork

Most space-lovers of a certain age group begin their journey with the same movie – Apollo 13, depicting the true events of the 1970 Apollo 13 lunar mission and the strategy to return back to Earth safely after the space craft experienced an in-space explosion.

New Orleans-native and Mississippi State alumnus, John Bourgeois, is no different. Even at a young age, Bourgeois was amazed by the accomplishments of the team and their ability to work together to bring the crew home safely.

Little did he know, that after completing his master's degree in mechanical engineering, similar teamwork would become an integral part of his career.

As a NASA mechanical operations engineer at Stennis Space Center near Bay St. Louis, Mississippi, for the past four years, Bourgeois was involved with testing the core stage for NASA's new Space Launch System (SLS) rocket – a job that naturally came with many challenges. When unforeseen obstacles disrupted the testing process, he found the key to success laid in working as an integrated team alongside the designated commercial partner.

When asked to describe his workplace environment at Stennis Space Center, Bourgeois sums it up in one simple George Strait quote, "It takes all kinds."

"Here, at Stennis Space Center, there are folks from every walk of life, which brings a much-needed breath of perspective when trying to solve the tough problems we are often faced with," said Bourgeois.

The mechanical operations team, as well as the opportunity to work on a historic project like NASA's Artemis program, is what Bourgeois considers the best thing about working at Stennis Space Center.

During core stage Green Run testing, Bourgeois was able to serve as the primary liquid oxygen (LOX) transfer engineer, and he will continue in this role for the upcoming Exploration Upper Stage (EUS) testing. It is through group effort of his team and others that NASA will be able to propel humankind further into space.

"It is an honor to work with the amazing team that has been assembled to accomplish the goals of this project," said Bourgeois.

Looking ahead, Bourgeois is excited for the future. With the SLS core stage project completed, his main responsibility is to prepare the B-2 Test Stand for the EUS testing, which will allow NASA to send astronauts and large payloads to the Moon on a single mission.

He is eager to contribute to the testing of the EUS and to witness the anticipated launch of the SLS, a heavy-lift launch vehicle that provides the foundation for human exploration beyond Earth's orbit. The SLS core stage tested at Stennis Space Center will help power the maiden Artemis I mission, leading humanity forward to the Moon and the eventual exploration of Mars.

New Orleans native, Bay St. Louis resident, and Mississippi State University alumnus John Bourgeois stands on the B-2 Test Stand at Stennis Space Center, where he is employed as a mechanical operations engineer.

NASA's Race to Space with Apollo 11

In 1955, the United States announced it would launch a satellite for the International Geophysical Year – an international scientific program that opened scientific exchanges between the East and the West that had been interrupted during the Cold War. The Soviet Union responded that they would also launch a satellite "in the near future." The Space Race began.

On Oct. 4, 1957, the Soviet Union launched Sputnik I into low-Earth orbit. They also put the first human in space, Yuri Gagarin, on April 12, 1961. The United States had its eye on the big prize, though. The U.S. was going to the Moon. The Space Race morphed into the Moon Race and the then-Mississippi Test Facility was a very important factor in the U.S. winning the race to the Moon. NASA needed a place to test the large rocket engines and stages needed to carry humans to the Moon. In August 1961, an ad hoc committee of members from NASA Headquarters and Marshall Space Flight Center began the work of finding the perfect location.

A historic photo shows the imprint from Buzz Aldrin's bootprint on the Moon's surface. Aldrin became the second human to walk on the lunar surface during the Apollo 11 mission.

There were several variables to consider since the rockets would be assembled at the Michoud Assembly Facility outside of New Orleans and launched from Cape Canaveral, Florida. NASA needed a propulsion test facility that, ideally, would lie between these two places, be away from a densely populated area because of the noise associated with testing rocket engines and stages, have access to both waterway and highway, have a mild climate so testing could conceivably be done year round, and have supporting communities nearby. Several already existing facilities were in the running, but the committee kept coming back to a marshy, pine tree-covered area along the Pearl River in Mississippi. The Pearl River site won out over the final six locations.

On Oct. 25, 1961, NASA announced that a rocket engine test site would be established in Hancock County, Mississippi. The site, known as Mississippi Test Operations at the time, would test the Saturn rockets that would launch the Apollo missions to the Moon. Construction would begin as soon as possible, but, first, residents living along the Pearl River would need convincing to leave their homes in preparation for the building of the test site. U.S. Sen. John C. Stennis had been a proponent of the Pearl River site from the beginning, using his contacts in Washington D.C. to plant the seed of having NASA operations in Mississippi.

Following NASA's announcement, Stennis himself visited residents of the Pearl River communities and appealed to their patriotism in asking them to give up their land and their homes "as a sacrifice in America's crusade against the Soviets." The Soviets had already put humans in space, and America was aiming to win the space race to get a person on the Moon. That day, Stennis promised residents of the Pearl River communities that he would make sure that their sacrifice was not in vain, that they were compensated for their property, and that they would never be forgotten for "taking part in greatness."

Just over seven years later, on July 20, 1969, Neil Armstrong, followed by Buzz Aldrin, stepped onto the surface of another world – the Moon. The Apollo 11 crew, however, did not get there on their own. It is estimated that 400,000 people worked to get humans to the Moon. Hundreds of people built the Mississippi Test Operations, including the test stands and control buildings that would test the rockets to take humans to the Moon. The engineers, scientists, and technicians right here in Hancock County, Mississippi all had a part to play in that momentous historical event.

Office of Diversity and Equal Opportunity

Advancing Diversity, Equity, Inclusion, and Accessibility

The federal government has something no other organization has – the unique mission of service to the American people. No other organization, public or private, is responsible for this mission, and that is why federal agencies must be diverse, equitable, and inclusive. Mission success depends on these three principles because they are the strength of the country. Such representation is not simply an idea to uphold, but it is also good business practice as numerous research studies and articles, from organizations like the Harvard Business Review and Forbes, show the many benefits of diverse teams. People with a range of unique perspectives help a team enhance performance, boost innovation, and focus more keenly on facts.

On June 25, 2021, President Biden signed an executive order to advance diversity, equity, inclusion, and accessibility (DEIA) in the federal workforce. The executive order reaffirms that the United States is at its strongest when the nation's public servants reflect the full diversity of the American people.

Even with decades of progress in building a federal workforce that looks like America, the enduring legacies of employment discrimination, systemic racism, and gender inequality are still felt today. Too many underserved communities remain under-represented in the federal workforce, especially in positions of leadership. The new executive order establishes an ambitious initiative that will take a systematic approach to embedding DEIA in federal hiring and employment practices.

This initiative will work to help advance opportunities for people of color; women; first-generation professionals and immigrants; individuals with disabilities; LGBTQ+ individuals; Americans who live in rural areas; older Americans who face age discrimination when seeking employment; parents and caregivers who face employment barriers; people of faith who require religious accommodations at work; individuals who were formerly incarcerated; and veterans and military spouses.

Additionally, the executive order will:

- Charge all agencies with assessing the current state of DEIA within their workforces and developing strategic plans to eliminate barriers to success faced by underserved employees.
- Enable agencies to seek opportunities to establish or elevate chief diversity officers.
- Expand DEIA training throughout the federal workforce.
- Address workplace harassment, including sexual harassment.
- Reduce the federal government's reliance on unpaid internships.
- Advance pay equity to ensure all public servants are fairly compensated for their work and talents.
- Advance equity in the workplace for individuals with disabilities.
- Advance equity for LGBTQ+ public servants.
- Build a more diverse pipeline into public service through recruitment.
- Expand federal employment opportunities for formerly incarcerated individuals.
- Advance professional development equity.
- Improve the collection of demographic data regarding the federal workforce.

When public servants reflect the communities they serve, the government is more effective and successful. The DEIA executive order will help develop a federal workforce that looks like America, where qualified people from every background and walk of life have an equal opportunity to serve the nation.

To review the president's new executive order, visit DEIA Executive Order.

Information in this article came from Partnership for Public Service and The White House Briefing Room.

Hail & Farewell

NASA welcomes the following:

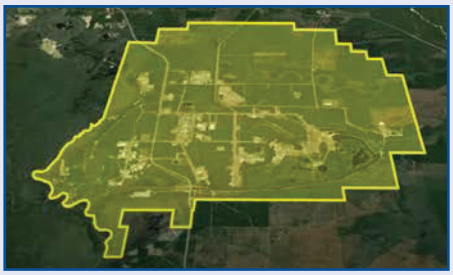
Amanda Ball	AST, Facility Systems Safety	Safety and Mission Assurance Directorate
Rodney Valdes	AST, Experimental Facilities Techniques	Center Operations Directorate

NASA bids farewell to the following:

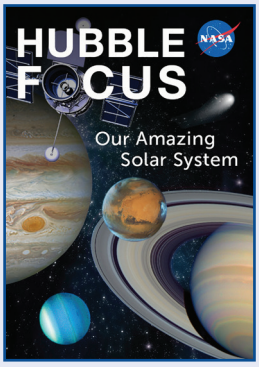
Bartt Hebert	Chief Engineer	Engineering and Test Directorate

Online Resources

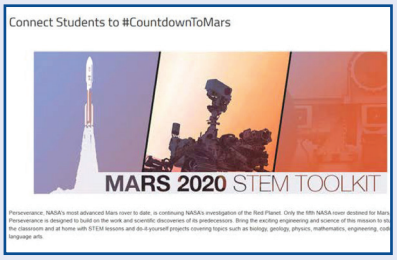
NASA Sets Sights on Venus – Fox 8 (New Orleans) interview on June 21 with Freddie Douglas, deputy director of Stennis Engineerng and Test Directorate



Stennis Virtual Tour



NASA E-Book Downloads



MARS 2020 STEM Toolkit

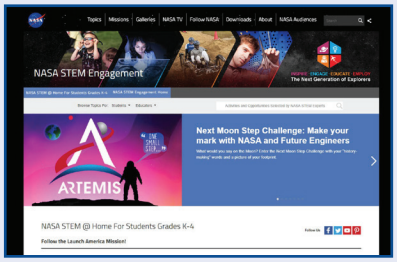
NASA at Home

Stennis Emergency Management

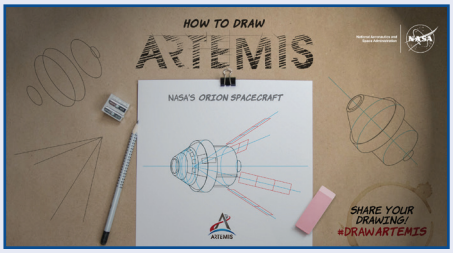
NASA Coronavirus Response

Stennis Fact Sheets

Stennis Artemis Resources page



NASA STEM@Home for Students



How to Draw Artemis