

Snoopy Returns From Artemis I Mission



Inside the lobby of the Neil Armstrong Operations and Checkout Building at NASA's Kennedy Space Center in Florida, Snoopy, the zero-gravity indicator that flew aboard Orion during the Artemis I mission, is shown on Jan. 5, after being unpacked from his transport case. Snoopy was secured inside Orion during the Artemis I mission, a journey beyond the Moon and back to prepare for crewed missions to the Moon. Artemis I launched atop the Space Launch System rocket on Nov. 16, 2022 from Kennedy's Launch Complex 39B. Orion returned to Earth for a splashdown in the Pacific Ocean on Dec. 11, 2022 after traveling more than 1.4 million miles. NASA has held an association with Snoopy since the Apollo Era – the character has contributed to the excitement for NASA human spaceflight missions, helping inspire generations to dream big, and is a symbol of NASA's safety culture and mission success. Photo Credit: (NASA/Isaac Watson)

See Page 3 For Additional Coverage

Greetings and Happy New Year, folks! The Gator family welcomed 2023 with a powerful show of fireworks. It ignited the night sky, blasting an array of colors so much so that it could allegedly be viewed all the way from the International Space Station. Many in attendance say the show ranked only behind liftoff of NASA's Space Launch System rocket that powers the Artemis space missions and an RS-25 engine test at NASA Stennis.

When thinking of holidays that come and go, the turning of the calendar from one year to the next might not be at the top of the list, but New Year's Day makes Gator's top three or four.

Goals and resolutions are two of the most used words this month. Someone has likely asked in recent weeks if you have any goals or resolutions for 2023. A goal is defined as the object of one's ambition or effort; an aim or desired result.

Setting goals for what one would like to accomplish reminds me of [NASA's Moon to Mars](#) strategy. It focuses on the big picture, the "what" and "why" of NASA's goal for human deep space exploration before considering how to get there.

The objectives of the Moon to Mars strategy will guide the success of NASA's exploration strategy through the return of astronauts to the Moon, subsequent lunar science and exploration,

and the first crewed landings on Mars. NASA will measure progress toward achieving the Moon to Mars objectives and update accordingly as plans for Artemis and future efforts evolve.

What I enjoy about this time of year is that no matter what has happened to this point, January is a time to begin again. It offers the chance to take inventory and keep things that are working well or move in another direction and try something new for a different outcome.

The act of being flexible is important. NASA has displayed that flexibility with updates to the Moon to Mars objectives and remaining attentive to feedback from the NASA workforce, industry, international partners, academia, and the general public. As NASA Deputy Administrator Pam Melroy has noted, the strategy will continue to be refined as new capabilities, new challenges, new learning, and new technologies arise.

The days are long, yet the years are short, so as this 2023 kicks into gear and picks up speed, consider a similar approach as NASA has with its Moon to Mars strategy: keep the horizon in mind, consider what you want to accomplish and the why behind it, and begin with the end in mind. Cheers to a great year!



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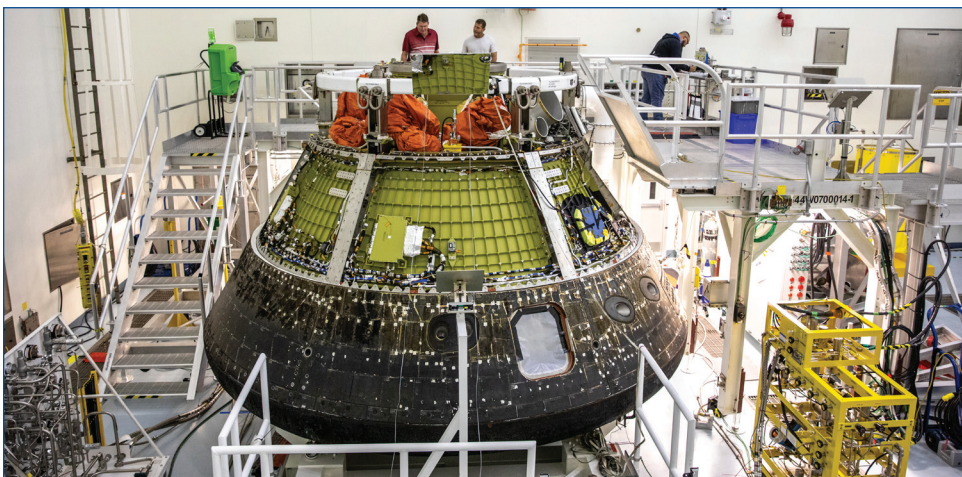
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Technicians Open Artemis I Orion Hatch for Post-Mission Processing



Inside the Multi-Payload Processing Facility at NASA's Kennedy Space Center in Florida, engineers and technicians opened the hatch of the Orion spacecraft for the Artemis I mission after a 1.4-million mile journey beyond the Moon and back. Orion returned to Kennedy on Dec. 30, 2022, after splashing down in the Pacific Ocean on Dec. 11. In this photo, a technician stands inside the crew module to remove payloads and assess the capsule. The team has removed all of the purposeful passengers and zero gravity indicator Snoopy, and has moved them to labs inside one of Kennedy's processing facilities. While Artemis I did not have crew on board, the three human-like payloads will help scientists and engineers understand how to best protect astronauts on future Artemis missions to the Moon. Technicians extracted nine avionics boxes from the Orion, which will subsequently be refurbished for Artemis II, the first mission with astronauts. Contents include a video processing unit, GPS receiver, four crew module phased array antennas, and three Orion inertial measurement units. The crew seat that Commander Moonikin Campos occupied on Artemis I will also be refurbished for flight on Artemis II. In the coming months, technicians will remove hazardous commodities that remain on board. Once complete, the spacecraft will journey to NASA's Neil A. Armstrong Test Facility at Glenn Research Center in Cleveland, Ohio, for abort-level acoustic vibration and other environmental testing. Photo Credit: (NASA/Kennedy)



The Artemis I Orion capsule is secured on a platform inside the Multi-Payload Processing Facility at Kennedy Space Center in Florida in this image from Jan. 6, 2023. Orion splashed down on Dec. 11, 2022 and was transported back to Kennedy for de-servicing. During Orion's 25.5-day trip beyond the Moon and back, it flew farther than any designed to carry humans to deep space and safely return them to Earth, paving the way for human deep space exploration and demonstrating NASA's commitment and capability to extend human presence to the Moon and beyond. Photo Credit: (NASA/Ben Smegelsky)

NASA's Stennis Space Center Sets Sights on Active 2023

As NASA continues its mission to explore the secrets of the universe for the benefit of all, NASA's Stennis Space Center is moving forward in 2023 with propulsion test projects for the agency, the Department of Defense, and commercial partners.

NASA took a major step for humanity in 2022 by moving closer to a permanent presence in deep space with the successful Artemis I mission. NASA Stennis, located near Bay St. Louis, Mississippi, played a key role in that effort, testing the engines and Space Launch System (SLS) core stage that helped launch the mission. The center now is focused squarely on 2023 testing activity.

"We had another very productive year in 2022 as we continued to build on our heritage of propulsion testing to support the NASA mission and the commercialization of space," said Joe Schuyler, director of the NASA Stennis Engineering and Test Directorate. "It should be another exciting year in 2023 for the team at NASA Stennis as we expand our commercial partnerships. There is no better place to perform rocket propulsion testing than right here with our proven assets and the skilled and experienced personnel at Stennis."

NASA Testing Outlook

A certification test series will begin in the first months of 2023 at the Fred Haise Test Stand on a full RS-25 certification engine manufactured by lead engine contractor Aerojet Rocketdyne. The redesigned engines are being built to power the SLS rocket for Artemis V and beyond.

Meanwhile, NASA Stennis teams continue modifications at the B-2 Test Stand for future Green Run testing of the Exploration Upper Stage (EUS), which is expected to fly on the Artemis IV mission. The stage is being developed to provide greater cargo and propulsion capabilities for deep space missions. In addition to other ongoing projects, Stennis crews recently performed a training exercise using the 75-ton interstage simulator component to practice handling the flight hardware.

First In-Space Demonstration

NASA Stennis will conduct its first in-space demonstration to showcase the expertise of the Autonomous Systems Lab (ASL) team and the capabilities of the ASL's NASA Platform for Autonomous Systems. NASA Stennis partnered with Sidus Space for the Autonomous Satellite Technology for Resilient Applications (ASTRA) project. The NASA Stennis ASL team will demonstrate autonomous operations on the LizzieSat-1 small satellite. The demonstration is expected to facilitate the possible use of the autonomous system platform for Artemis missions and beyond.

Commercial Partners Testing

The versatile, four-stand E Test Complex at NASA Stennis will continue providing value to commercial companies in 2023, just as it has done for more than 20 years.

Relativity Space occupies two of the four stands through an earlier Commercial Space Launch Act agreement made in 2018. Relativity Space also is constructing its Terran-R Test Complex adjacent to the E Test Complex under a recent Enhanced Use Lease Agreement with NASA Stennis. Two planned test cell positions will be the site of future Aeon R engine testing. The company envisions the completed project as one of the largest commercial test facilities in the nation, utilizing 268 acres at NASA Stennis.

Aerospace company Rocket Lab also has entered into an Enhanced Use Lease Agreement partnership with NASA Stennis. The company plans to develop the A-3 Test Stand area and about 24 surrounding acres into its Archimedes Test Complex, named for Rocket Lab's new rocket engine that will power its large, reusable Neutron rocket.

Additionally, testing was completed on Launcher Space's engine components at the E Test Complex in 2022, and the company is planning to begin full engine testing this year. In 2023, NASA Stennis will continue testing for Relativity Space, Virgin Orbit, and Ursa Major as well, and will begin a new suite of tests for Blue Origin and Venus Aerospace.



RS-25 engine No. 10001 arrives for installation on the Fred Haise Test Stand at NASA's Stennis Space Center on Nov. 15, 2022. Operators plan to conduct 12 tests in 2023 to certify new engine components and production processes.



An aerial image shows the E Test Complex at NASA's Stennis Space Center. For more than 20 years, NASA Stennis has provided value to commercial companies to meet testing needs. The same is expected in 2023.

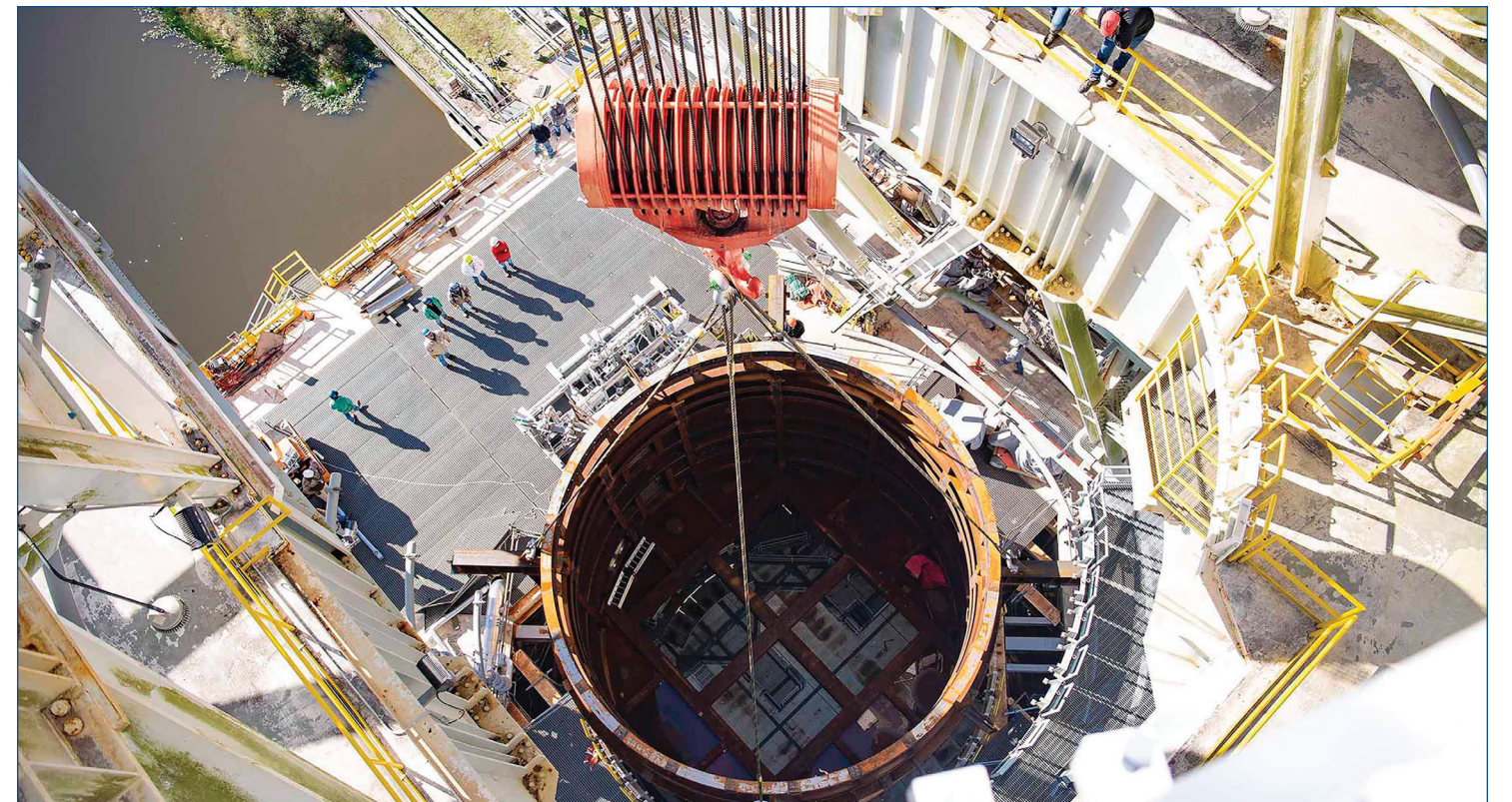


NASA Stennis crews adjust a diffuser module at the B-2 Test Stand following the arrival of the modules on Dec. 6, 2022. Modifications at the B-2 Test Stand will continue in 2023 for future Green Run testing of the Exploration Upper Stage.

NASA Stennis Continues Preparation for Exploration Upper Stage

Crews at NASA's Stennis Space Center lift the 75-ton interstage simulator test component into place at the B-2 Test Stand on Dec. 15. The test component, 31 feet in diameter and 33 feet tall, will be used during Green Run testing of the new Exploration Upper Stage (EUS), which will fly on future Space Launch System missions as NASA continues its mission to explore the universe for the benefit of all. The lift exercise served multiple purposes for the NASA Stennis test complex personnel. Overall, crews used the component as a "pathfinder" for the EUS unit, which helped train lift crews on best practices for moving and handling the actual flight hardware when it arrives. Although the simulator is not exactly the size of the EUS unit, lifting the component into place on the B-2 Test Stand allowed crews to simulate procedures and techniques for handling the flight hardware. The lift also allowed crews to check the test stand clearances to ensure all is configured as needed for the EUS unit. Several key test stand elements must be nearly perfectly aligned for EUS. The simulator lift and install helped crews take precise measurements to ensure those elements are properly placed. Finally, the lift allowed operators to return the simulator to proper placement on the B-2 tarmac following its removal from the test stand on Dec. 16. The simulator had been resting on temporary supports since its arrival in September. With the simulator now placed and leveled on proper tarmac pedestals, the NASA Stennis team will perform finishing work in the coming months to prepare the simulator for full installation onto the test stand. This will include finishing access platforms and precision interfaces prior to sandblasting and painting the test component. The final step prior to installation will be installing various piping and tubing, as well as wiring connections needed for Green Run testing. By the time the simulator is re-installed on the stand, its weight will have increased to 80 tons. EUS is being built at NASA's Michoud Assembly Facility in New Orleans as a more powerful second stage to send the Orion spacecraft to deep space. EUS is expected to fly on the Artemis IV mission. Before that, it will be installed on the B-2 Test Stand at NASA Stennis to undergo a series of Green Run tests of its integrated systems to demonstrate it is ready to fly.

Click [here](#) to see full image gallery.



NASA Stennis Continues Preparation for Exploration Upper Stage

Components continue to arrive at NASA's Stennis Space Center in preparation for future Green Run testing of the new upper stage for the Space Launch System rocket that will power future Artemis missions. Four large diffusers arrived at the south Mississippi site on Dec. 6. Crews used a crane to lift the modules, each weighing 14 tons, from the delivery trailers, and rotated them from horizontal to vertical position prior to lowering them into staging frames on the B-2 Test Stand tarmac. The modules, one for each of the Exploration Upper Stage (EUS) engines, will be connected to the EUS engine nozzles using a flexible seal so gimbaling can occur during Green Run testing. Gimballing is the term for moving a rocket engine a few degrees along a tight circular axis to direct the thrust and "steer" a vehicle to achieve the proper trajectory. Diffusers are typically used to simulate the lower atmospheric pressure of high-altitude portions of the flight. For Green Run testing of the EUS unit, the diffusers also will help contain the engine exhaust and minimize the heat exposure to critical systems. Now that the diffusers are staged at the test stand, the NASA Stennis team will attach two modules together using a structural steel bundle support frame and will perform other needed finishing work. Installation of the diffusers onto the test stand is expected later this year.



NASA Stennis Project Focuses on Refurbishing Waterway Lock System

For almost 60 years, a lock system connecting the Gulf of Mexico and Pearl River to NASA's Stennis Space Center near Bay St. Louis, Mississippi, has provided critical waterway passage for flight hardware and other infrastructure deliveries on site.

The lock system also has enabled the center to maintain necessary water levels in the seven-and-a-half-mile canal system connecting its large test stands. A months-long project now is underway to ensure that essential lock access and function continues as the site supports NASA's mission to explore the secrets of the universe for the benefit of all.

Waterway access to NASA Stennis was instrumental in selecting Hancock County, Mississippi, as the location for NASA's Stennis Space Center. The access has proved vital for delivering flight hardware and other equipment during the Apollo and Space Shuttle Programs, as well as for current Space Launch System and Artemis testing.

The lock system also allows NASA Stennis to maintain a constant water level in its canal waterways. This is key in allowing propellant barges to connect to test stands to support various test operations. Without the constant water level, barges would need various amounts of ballast to compensate for changing elevations.

During the current project, a key part of the lock infrastructure, constructed and installed in the 1960s, is undergoing its first-ever upgrade. The lock system's miter gates were removed in November for a complete inspection and refurbishment of the structural steel. The gates are expected to be reinstalled in May with the system restored to full operation in June.

"The lock system has a perfect operation record," said NASA project manager Dale Woolridge. "It has never failed. We have never had a gate lock up or get to where we could not move it. We have never had a situation where we were trying to get a vessel through the lock system where the gates could not operate properly, and the vessel had to hold. However, we were beginning to experience leaking during the opening and closing of the gates, so it was

time to get this project done to continue with a successful operation moving forward."

Typically, the water level of the NASA Stennis canal system is about 16 to 18 feet higher than the Pearl River. When a vessel travels to NASA Stennis, the lock system and miter gates allow operators to raise the watercraft from the lower river level to the higher canal level. Previous work on the lock system was performed with the gates in place. The NASA project manager credits the original design, skilled operations, and regular maintenance of the lock system for the gates exceeding their 50-year design life.

For the current project, implemented through the United States Corp of Engineer and performed by contract work. The design team first had to confirm if the structure could be lifted.

The four gates – two upper (canal side) and two lower (Pearl River side) gates – each weigh 270,000 pounds, are seven feet thick, and measure 60 feet by 40 feet. After confirming the gates could be removed, crews welded lifting logs in place for each gate. The gates then were lifted with a crane on a floating barge.

"The Corps is doing a great job," Woolridge said. "The contractor did a great job getting the gates out. There is a lot of risk in lifting something that big."

Stop logs were installed to act as a detainer wall to keep the canal system at the proper water level prior to the removal of the gates. Woolridge has worked as a NASA project manager for 23 years, overseeing large projects such as the design and construction of the site's Emergency Operations Center. He called the current project his favorite.

"It was very interesting to me," he said. "As a civil engineer, this is what I like. Refurbishment of the structure reduces risks to the perfect operational record. We cannot have a piece of spaceflight hardware meant for the Moon trapped on Earth due to a broken lock gate."

See photos and a brief video of the NASA Stennis project [here](#).



NASA's Stennis Space Center's navigation lock system provides waterway passage for flight hardware and other infrastructure deliveries to the site.



Crews position stop logs to ensure the canal system that connects NASA's Stennis Space Center to the Pearl River will maintain the proper water level as gates to the navigation lock system undergo upgrades.



Crews remove the lower south gate to the navigation lock system at NASA's Stennis Space Center using a crane on a floating barge on Nov. 21. A months-long project is underway to ensure essential lock access continues as the site supports NASA's mission to explore the secrets of the universe for the benefit of all.



Crews use a crane on a floating barge to lift the lower south gate of the navigation lock system at NASA's Stennis Space Center on Nov. 21. The four gates, each weighing 270,000 pounds, were taken off site to undergo full inspection and refurbishment.

Fuel For Thought: How NASA's Stennis Space Center Powers Testing

When one considers the fuel of choice, many options may come to mind. For a car, it typically is gasoline. To jump start one's day, the choice might be caffeinated coffee. At [NASA's Stennis Space Center](#), the fuel of choice is primarily liquid hydrogen.

NASA Stennis uses a lot of liquid hydrogen fuel, particularly in testing engines and propulsion systems for NASA's Space Launch System (SLS) rocket. SLS launched the recent Artemis I test mission and will power future missions to the Moon and, eventually, Mars, as NASA continues its mission to explore the secrets of the universe for the benefit of all.

To gain a sense of just how much liquid hydrogen is used at NASA Stennis, in November, the agency awarded [contracts](#) to supply up to 15 million pounds of liquid hydrogen for use at facilities across the agency. This includes about 13.1 million pounds between NASA Stennis and NASA's Marshall Space Flight Center in Huntsville, Alabama.

Tanker trucks deliver liquid hydrogen to NASA Stennis on a regular basis. In 2021, the site received over 3.1 million pounds of hydrogen, equaling 5.3 million gallons, or 405 tanker trucks. Work crews anticipate a more active testing schedule in 2023, so the total should increase.

"When used together like on the RS-25 engine, liquid hydrogen and liquid oxygen make up a highly reactive and efficient propellant combination," said NASA Stennis Chief of Test Operations Maury Vander. "When evaluating engine efficiency, one measurement that is used is specific impulse, which looks at the engine's thrust output versus the weight of the propellant consumed. Hydrogen can provide a big advantage because it is lighter than most other fuels."

Hydrogen is a colorless, odorless gas with the lowest molecular weight of any known substance. To reach a liquid state, hydrogen must be stored at minus 423 degrees Fahrenheit. The low temperature, and hydrogen's high flammability, means it must be handled with great care.

The Fred Haise Test Stand, where NASA tests RS-25 engines, has a propellant run tank that

holds 100,000 gallons of liquid hydrogen. For long-duration tests on the stands, the run tank can be replenished by two liquid hydrogen barges capable of holding 230,000 gallons each.

During an SLS launch, four RS-25 engines provide about 2 million pounds of combined thrust. The engines are fueled by a core stage tank that holds 537,000 gallons of liquid hydrogen.

When the SLS core stage was tested at NASA Stennis in 2021, barges were used to fill and replenish the tank. The demand taxed the site system to the limit, with crews filling the barges to 110% capacity to support test operations.

When the barges are not supporting test operations, they remain at the Cryogenic Storage Facility. Both the barges and run tanks are vacuum jacket vessels, which helps maintain the cold temperature needed to minimize boil off, or the removal of liquid hydrogen through evaporation.

About 1% of liquid hydrogen stored in the run tanks boils off daily. The evaporated gas must be burned off using flare stacks, otherwise it could form an explosive mixture if simply vented into the atmosphere. Sensors located throughout the test complex also constantly monitor for gas leaks and fire detection to prevent unwanted venting.

"Personal safety is our primary concern," Vander said. "Anytime we approach working in a hydrogen system, we are meticulous about it. We do not take shortcuts and our employees know it is for safety."

The safety protocols extend to working on test stand piping. Teams use gaseous helium or nitrogen to ensure piping is inert and safe to access.

"Our workforce is trained on safe practices," Vander said. "That gets engrained in them from day one, and we try our best to avoid any incidents. We have been very blessed to do that. Blessed is one thing, but it is also being well-prepared and having a good group of people doing it."

(Right photo) An image from October 2020 shows the liquid hydrogen and liquid oxygen run tanks at the Fred Haise Test Stand at NASA's Stennis Space Center.



"When used together like on the RS-25 engine, liquid hydrogen and liquid oxygen make up a highly reactive and efficient propellant combination."

-NASA Stennis Chief of Test Operations Maury Vander



The James Webb Space Telescope spies the spiral galaxy NGC 7469, located 220 million light-years from Earth in the constellation Pegasus, in this image released on Dec. 21, 2022. This galaxy is very dusty, but Webb's infrared vision can peer through to observe features like the intense ring of star formation close around its bright center. The large spikes viewed are not real objects. They are diffraction spikes, an effect of very bright light interacting with the telescope mirrors. Here the center of the galaxy is extremely bright due to light emitted by heated dust and gas falling into the central black hole. Photo Credit: ESA/Webb, NASA & CSA, L. Armus, A. S. Evans

NASA in the News

NASA's James Webb Telescope Confirms Its First Exoplanet, A Planet That Orbits Another Star

Researchers confirmed an exoplanet using NASA's James Webb Space Telescope for the first time. Formally classified as LHS 475 b, the planet is almost exactly the same size as Earth, clocking in at 99% of Earth's diameter. The research team is led by Kevin Stevenson and Jacob Lustig-Yaeger, both of the Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. The team chose to observe this target with Webb after carefully reviewing targets of interest from NASA's Transiting Exoplanet Survey Satellite, which hinted at the planet's existence. Webb's Near-Infrared Spectrograph captured the planet easily and clearly with only two transit observations. "There is no question that the planet is there," Lustig-Yaeger said. "Webb's pristine data validates it." Click [here](#) to read more about the exoplanet discovery using the Webb Space Telescope.

NASA Provides Avenues for Students to Dive Further into Space and Science During 2023

NASA had a stellar year in 2022, with the inspiring Artemis I mission paving the way for future crewed flights to the Moon, dazzling images beamed back to Earth from the new James Webb Space Telescope, and more. As the calendar turns to 2023, NASA is launching into a new era of human spaceflight. There are many ways to bring the excitement of space exploration into the classroom or to learners at home. For starters, explore NASA's return to the Moon with Artemis. The success of Artemis I in 2022 sets the stage for increasingly ambitious Artemis missions that will ultimately return humans, including the first woman and first person of color, to the lunar surface. Watch "[To the Moon and Back: The Journey of Artemis I](#)" and learn how the Space Launch System rocket launched. Click [here](#) to read more ways to engage with NASA STEM in 2023.

NASA Stennis News



NASA Honors 2022 Stennis Employees for Flight Safety

Astronaut Andrew Feustel stands with 2022 Silver Snoopy recipients from NASA's Stennis Space Center following the presentation of the awards during an on-site ceremony Jan. 11. The Silver Snoopys are astronauts' personal awards, given in recognition of contributions to flight safety and mission success. The award is presented to less than 1% of the total NASA workforce annually. Recipients (and their companies) of the 2022 awards, along with ceremony presenters were: (l to r) Feustel, Karl Wilcox (SaiTech Inc.), Tuan Ngo (Syncom Space Services), Samantha Lopez (SAIC), Bridget Moody (NASA), Brandon Ladner (NASA), Ryan Warner (Aerojet Rocketdyne), Peter Taggard III (Aerojet Rocketdyne), Thomas Matthews (General Dynamics Information Technology), Shannon Sharkey (NASA), Diane Fulton (NASA/NSSC), Taylor Davie (Alutiq Essential Services), and NASA Stennis Director Dr. Rick Gilbrech.



NASA Deputy Associate Administrator for STEM Engagement Visits NASA Stennis

NASA Deputy Associate Administrator for STEM Engagement Elaine Ho (far right) stands atop the B-2 Test Stand during a site visit on Dec. 14, 2022. She is shown with NASA Stennis Chief of Test Operations Maury Vander (l to r), Special Assistant Office of Legislative and Intergovernmental Affairs Reagan Hunter, and NASA ASTRO Camp Community Partners Project Team Lead Maria Lott. During her visit, Ho also met with NASA Stennis senior leadership and members of the NASA Stennis Office of STEM Engagement.

Hail & Farewell

NASA welcomes the following:

Carolyn Tolman

Attorney-Advisor

Office of the Chief Counsel

NASA Engineer Finds Sweet Spot at NASA Stennis

The challenge, excitement, and reward of helping to return humans safely to the Moon is what inspires NASA engineer Bradley Tyree daily at NASA's Stennis Space Center. It is at NASA Stennis where Tyree's talents meet a mission greater than himself as NASA explores the secrets of the universe for the benefit of all.

"They say when you enjoy what you do, then you will never work a day in your life, and I believe that is true," Tyree said. "I look forward to coming in every day because each day offers a new challenge, whether it's building up a new system or meeting the ever-changing test requirements of the RS-25 or improving a system that has been installed for years by implementing a new technology and using existing alternate industry practices."

The Carriere, Mississippi, native comes from multiple generations local to the area near NASA Stennis, so Tyree wanted to return after earning a bachelor's degree in aerospace engineering at Mississippi State University in 2018. A conversation with his college roommate alerted Tyree that NASA Stennis was hiring. Tyree recalls eagerly submitting his application, and after a competitive interview experience, he was offered a job in the E Test Complex working in test operations for Syncom Space Services.

Tyree accepted a position with NASA's mechanical test operations team in 2020, where he supports the RS-25 program at the Fred Haise Test Stand. Tyree helps maintain and operate the various mechanical systems needed to conduct RS-25 tests, including those for delivering propellants. The NASA engineer supported Green Run testing of the Space Launch System (SLS) core stage on the B-2 Test Stand by operating helium compressors staged at the E-3 Test Stand. The

compressors helped provide helium gas required to purge and maintain the liquid hydrogen run tank on the core stage.

Following the launch of Artemis I, Tyree is curious to see how NASA implements what it has learned from both Green Run testing and the actual launch of the SLS rocket. Tyree is implementing new skills learned through working alongside veteran engineers at NASA Stennis. In 2022, he completed work for his liquid hydrogen transfer qualification. He now is working toward a similar qualification for the liquid oxygen

transfer role before pursuing qualifications to become a test conductor.

"What I find interesting about the NASA Stennis culture is there are a number of personnel who have been working on the stands and testing rocket engines for longer than I have been alive," Tyree said. "It is an amazing opportunity to work alongside some of these knowledgeable engineers and technicians who have an in-depth understanding of how their individual work plays a part in the entire process of testing engines."

In the world of test operations, various challenges present themselves. Tyree embraces the greatest challenges, which to him are those that are not expected. He credits the team at NASA Stennis for how it identifies solutions to challenges in real time.

"I'm proudest to be a part of the same group of engineers that I looked up to as a child," Tyree said. "What I once thought was only a dream has become a reality, and I want to do the best I can to try and be a good team member, role model, and knowledgeable engineer that will inspire the next generation of thinkers."



NASA engineer Bradley Tyree supports testing of the RS-25 engine, pictured in the background, at the Fred Haise Test Stand at NASA Stennis. Four RS-25 engines help power NASA's Space Launch System rocket.

Office of Diversity and Equal Opportunity

Celebrate the Legacy of Martin Luther King Jr.

The month of January starts the year toward a future filled with new beginnings and resolutions for personal growth. It is also the month honoring the life and legacy of Martin Luther King (MLK) Jr. The third Monday in January has been a federal holiday since 1983 but has widely been celebrated since King's death in 1968. The holiday invites observers to honor King's life in a day of service and advocacy.

As a civil rights activist, MLK participated and led countless peaceful protests, beginning with the Montgomery, Alabama Bus Boycott in 1955. It protested segregated seating on public transportation. The boycott was successful due to the economic strain put on the public transit system and business owners.

MLK quickly entered the national spotlight as a civil rights activist. Following the success of the Montgomery Bus Boycott, he worked with other civil rights leaders to form the Southern Christian Leadership Conference (SCLC). The SCLC is a group committed to achieving full equality for African Americans through nonviolent protest ([MLK - HISTORY](#)). MLK served as SCLC's president, traveling around the country, and sometimes across the world, to give lectures on non-violent protests and civil rights.

In 1963, King and the SCLC joined a local movement in Birmingham, Alabama. The Alabama Christian Movement for Human Rights (ACMHR) created an action campaign to attack the city's segregation system. The campaign included mass meetings, lunch counter sit-ins, marches on city hall, and a boycott of Birmingham merchants. King worked with ACMHR to teach the philosophy and methods of nonviolent protests, encourage Birmingham citizens to volunteer with the ACMHR, and lead efforts for voter registration.

King was arrested for violating the anti-protest injunction, which prohibited mass public demonstrations ([Birmingham Campaign](#)). While in solitary confinement, King wrote his famous "Letter from Birmingham Jail," which was a response to Birmingham religious leaders' criticism of ACMHR's campaign. The letter expressed the value of a nonviolent campaign and later became part of King's memoir, "Why We Can't Wait."

Following the Birmingham boycott, MLK worked

with other civil rights leaders and religious groups to organize the March on Washington, "a massive protest march that occurred in August of 1963 when some 250,000 people gathered in front of the Lincoln Memorial." During the march, protesters continued to draw attention to "the continuing challenges and inequalities faced by African Americans a century after emancipation." King gave his famous, "I Have a Dream" speech at the march. The speech "spirited [a] call for peace and equality that many consider a masterpiece of rhetoric" ([March on Washington - HISTORY](#)).

In 1964, King was named Time Magazine's Man of the Year, becoming the first African American to receive the honor. He was also awarded a Nobel Peace Prize later that year, making him the youngest recipient of the award at the time. Following his year of recognition, King worked with SCLC and the Student Nonviolent Coordinating Committee in Selma, Alabama, to support an organized voter registration campaign. The campaign compelled supporters from across the country to gather in Alabama and take part in the Selma to Montgomery march. The march was openly supported by President Lyndon B. Johnson, who sent federal troops to keep the peace.

King also worked with the SCLC to address poverty in America. The Poor People's Campaign worked to meet "with government officials to demand jobs, unemployment insurance, a fair minimum wage, and education for poor adults and children" ([Poor People's Campaign | stanford.edu](#)).

In April 1968, King arrived in Memphis to support the sanitation worker's strike. On April 4, 1968, he was fatally shot while standing on the balcony of the Lorraine Motel in Memphis. Following his death, President Johnson declared a National Day of Mourning. In 1983, President Ronald Reagan signed into law a bill creating a national holiday to honor King. MLK Day is the only federal holiday designated as a National Day of Service to encourage all Americans to volunteer to improve their communities.

The MLK Day holiday annually allows for time to honor King by serving and advocating for others while reflecting on the strides he made to ensure civil liberties for all. For more information about MLK, click below:

[The King Center](#)

Online Resources



NASA Stennis Artemis Resources

Click the above photo for NASA Stennis Artemis resources.



NASA Stennis Video Shorts

Click the links below to watch brief videos of NASA Stennis projects.

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- [Key Testing Component](#)
- [Data Acquisition System](#)
- [Thrust Vector Control System](#)

NASA Stennis Resources and NASA Stennis In The News

Click the links below for more about NASA Stennis and recent NASA Stennis media appearances.

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- [I Am Stennis Facebook Videos](#)
- [WLOX: Look Ahead to Artemis II With NASA Stennis Associate Director Rodney McKellip](#)
- [WLOX: NASA Stennis Engineers React to Successful Artemis I Mission](#)