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LAGNIAPPE

John C. Stennis Space Center

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NASA Stennis Inspires Capital City Youth

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Also Inside

A student poses as an astronaut on Feb.16 during an outreach event hosted by NASA's Stennis Space Center at Obama Magnet Elementary School in Jackson, Mississippi. Photo Credit: Jackson Public Schools

One of my favorite songs goes something like this, "Fly me to the Moon / Let me play among the stars / Let me see what spring is like on a Jupiter and Mars."

Simply reading the lyrics can put one in a better mood. Did you know that Frank Sinatra's 1964 recording of the song became closely associated with NASA's Apollo space program? Some astronauts carried recordings of Sinatra tunes to space with them, and Sinatra even sang his famous song during a tribute performance for Apollo 11 crew members.

I have not experienced what spring is like on Jupiter and Mars (yet), so for now, I will hang out at NASA Stennis, where folks are helping make return trips to the Moon possible in preparation for journeys beyond. It appears spring arrived early in these parts. Pink and purple flowers captured my attention starting in late February. The spring season officially begins March 20 and moving from winter to spring has its perks – more daylight, more time spent outside, and more to look forward to at NASA.

NASA indeed is on its way back to the Moon before eventual journeys to Mars. I continue to hear rumblings that the historical announcement naming the initial crew for Artemis II could come this spring. Artemis II builds on the success of the uncrewed Artemis I mission from 2022. During Artemis II, four astronauts will fly around the Moon to test capabilities of the Space Launch System rocket and Orion spacecraft for the first time with crew. It will pave the way for lunar surface missions, including the first woman and first person of color on the Moon. How exciting is that?

Of course, the rumblings I hear could be from the roar of RS-25 engine tests NASA Stennis has conducted recently in preparation for future Artemis missions.

The other day, I nodded off to sleep as I relaxed in my hammock with the sun shining and the Fred Haise Test Stand in view. As I drifted off to sleep, the "Fly Me to the Moon" song came to mind, and I wondered what new tune could be closely associated with Artemis?

Before I come up with the next great hit that rivals Sinatra, I promised the grandgators we would take in the Hubble Traveling Exhibit at INFINITY Science Center. The exhibit will be at the official visitor center of NASA Stennis until Sept. 10, so it is likely that we venture to see it more than once. After all, a new season is here, and I have a spring in my step.

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President's Fiscal Year 2024 Budget Strengthens NASA, Space Economy

The Biden-Harris Administration released the President's Budget for Fiscal Year 2024 on March 9, and it will allow NASA to continue exploring the secrets of the universe for the benefit of all through Artemis, the Mars Sample Return mission, and other efforts.

"The budget details a blueprint to grow the economy from the bottom up and middle out," said NASA Administrator Bill Nelson. "At NASA, we support good-paying American jobs, stir imaginations, and excite the world to gaze up at the heavens and reflect on our place in the universe."

The budget allows NASA to monitor and protect the planet, advance sustainable aviation, better support orbital debris management, develop innovative new technologies, and inspire the Artemis Generation.

"President Biden's budget will help us explore new cosmic shores, continue to make strides in traveling to and working in space and on the Moon, increase the speed and safety of air travel with cutting-edge technologies, and help protect our planet and improve lives here on Earth," said Nelson.

The budget details a blueprint to strengthen the economy, including supporting NASA's investments in public/private partnerships. At NASA, the budget will:

Build on the successful Artemis I mission and pave the way for a long-term presence at the Moon. The budget's $8.1 billion to enable unprecedented lunar exploration activities also will prepare for the next giant leap, sending astronauts to Mars, through NASA's Moon to Mars exploration approach.

Further new scientific discovery in our solar system and beyond. The budget provides $949 million for the U.S.-led Mars Sample Return mission, which will return rock and soil samples to Earth to expand our understanding of the solar system and pave the way for human exploration. The budget's almost $2.5 billion for Earth Science includes the Earth System Observatory and will provide open access to actionable data and information on climate change and natural hazards for scientists, decision-makers, and the public.

Support a future in low-Earth orbit. Regular crewed missions to the International Space Station will enable multiple commercial partners to build a robust space economy where NASA is one of many customers. The budget also invests $39 million to better understand the orbital debris environment and explore approaches to ensure safe access to space.

Advance U.S. leadership in technology innovation in aviation and space. The budget invests more than $500 million in a suite of technologies that will help meet the administration's goal of net-zero carbon emissions from the aviation sector no later than 2050. The budget's $1.39 billion to support the research and development of new technologies will advance our space exploration capabilities and create jobs through the growth of commercial space companies that will both use and provide new technologies.

Engage diverse learners in NASA's mission to create our nation's next generation of scientists, engineers, and explorers – the Artemis Generation. The budget's $158 million for NASA's Office of STEM Engagement will engage more students through enhanced partnerships and platforms. This includes expanding opportunities for students from underrepresented communities.

Building on the president's strong record of fiscal responsibility, the budget more than fully pays for its investments by reducing deficits over the next decade. For more information on NASA's fiscal year 2024 discretionary request, visit here.

Click here to watch the State of NASA address from Administrator Bill Nelson

NASA Continues Testing Redesigned Artemis Moon Rocket Engines

NASA's testing for redesigned RS-25 engines to be used on future Space Launch System (SLS) missions continued with a March 8 full-duration hot fire at NASA's Stennis Space Center.

The test, conducted on the Fred Haise Test Stand at NASA Stennis, was the third of the year and part of an ongoing certification hot fire series. It also was the third test since an upgraded nozzle was installed on the RS-25 engine just prior to a Feb 8 hot fire.

The redesigned engines provided by lead SLS engines contractor Aerojet Rocketdyne will be used on future Artemis flights to the Moon, beginning with Artemis V, as NASA continues its mission to explore the secrets of the universe for the benefit of all.

"Early indications are that the nozzle is working well," said Mike Lauer, deputy program manager of RS-25 engines at Aerojet Rocketdyne. "Even though we changed manufacturing methods, we did not want to radically change the performance of the nozzle. We are very pleased that the nozzle appears to be performing very much in line with our previous history."

Operators fired the RS-25 engine during the test for a scheduled 520 seconds and up to 113% power level. During missions to the Moon, engines fire for about 500 seconds and up to the 111% power level to help SLS lift the Orion spacecraft and other payloads to orbit.

With added seconds and the increased power level during ground tests, engineers can learn more about engine performance and provide a margin of operational safety.

The nozzle, or bell-shaped part at the bottom of the RS-25 engine, helps generate thrust by ejecting the engine's exhaust at maximum speed to propel SLS to space. It is one of multiple upgraded components on the redesigned engine and also critical in ensuring efficiency by using a minimum amount of propellants, or fuel, to generate thrust and help propel the rocket to space. The nozzle is one reason the RS-25 is one of the most fuel-efficient rocket engines in the world.

Over the course of the storied history of the RS-25 engine, many components have gone through changes or upgrades. One component that mostly went unchanged was the nozzle.

For redesigned RS-25 engines, however, a team focused on re-engineering every part of the nozzle. This included using precision machining to improve production of the more than 1,000 tubes that comprise the nozzle wall.

These tubes are critical in flowing super-cold liquid hydrogen to keep the nozzle cool. The team also is using 3D printing to manufacture selected nozzle parts.

Upgrades to the nozzle include a new type and amount of insulation, which is a critical consideration since the RS-25 engines are exposed to more heat during SLS launches than previous space shuttle missions. SLS features four RS-25 engines instead of the three main engines used for the space shuttle and the proximity of the RS-25 nozzle to the SLS solid rocket boosters is closer than on the space shuttle.

The goal of the upgrades is to streamline the nozzle production process, while making it more cost efficient and still achieving the same performance level as with previous RS-25 engines. While new manufacturing methods have been incorporated into the production of the nozzle, the shape, length, and diameter remain the same.

Sixteen main engines remained from the shuttle program. All were modified and tested at NASA Stennis for use on the first four Artemis missions

For information about the Space Launch System, visit here.

NASA conducts an RS-25 hot fire test on the Fred Haise Test Stand at NASA's Stennis Space Center in south Mississippi on March 8, 2023.

RS-25 Test Series Highlights

- NASA began a new series of hot fire testing Dec. 14, 2022, at the Fred Haise Test Stand.
- In 2019, NASA contracted with Aerojet Rocketdyne to produce new RS-25 engines for future Space Launch System missions beyond Artemis IV.
- The new RS-25 engines will be manufactured with advanced processes, such as 3D printing, to reduce production time and costs.
- On Feb. 8, NASA conducted the first test of a newly redesigned RS-25 engine.
- The subsequent 12-test series will demonstrate that Aerojet Rocketdyne is prepared to produce engines for future missions.
- Engineers completed a 500-second hot fire test that powered up to 111% on Feb. 8.
- Engineers completed a 600-second hot fire test that powered up to 111% on Feb. 22.

Leaders Participate in Annual Stennis Day at the Capitol

Leaders from NASA's Stennis Space Center visited Jackson, Mississippi, in mid-February to share site updates with state leaders during the annual Stennis Day at the Capitol. NASA Stennis is on the front line of the next great era of human space exploration as it tests propulsion systems and engines to help power Artemis missions on the Space Launch System rocket to deep space. Through Artemis, NASA is continuing its mission to explore the secrets of the universe for the benefit of all and inspire the world through discovery. In addition to propulsion testing, NASA Stennis supports cutting-edge technology development, helping to foster an entrepreneurial spirit in the region. It also seeks to attract new industry to the area as it continues to grow as an aerospace and technology-based hub.

(Top left photo) NASA Stennis Deputy Director John Bailey addresses members of the Mississippi Senate during Stennis Day at the Capitol on Feb. 16. Also shown are (l to r): Sen. Jeremy England, Sen. Brice Wiggins, Sen. Mike Thompson, Sen. Scott DeLano, Sen. Bart Williams, Sen. Philip Moran, Bailey, NASA Stennis Associate Director Rodney McKellip, and NASA Shared Services Center Executive Director Anita Harrell.

(Top right photo) A group of students serving as legislative pages visit NASA's Stennis Space Center booth in the rotunda of the Mississippi State Capitol in Jackson, Mississippi, on Feb. 16 during Stennis Day at the Capitol activities.

(Bottom left photo) NASA's Stennis Space Center Deputy Chief Financial Officer Patrick Cullen shares center information in the rotunda of the Mississippi State Capitol in Jackson, Mississippi, during Stennis Day at the Capitol activities Feb. 16.

(Bottom right photo) NASA Stennis Deputy Director John Bailey (second from right) meets with Mississippi Lt. Gov. Delbert Hosemann (right) as part of Stennis Day at the Capitol in Jackson, Mississippi, on Feb. 16. Also participating in the meeting were (l to r): Mississippi Sen. Mike Thompson and Sen. Bart Williams.

NASA Stennis Engages the Artemis Generation in Capital City

NASA Stennis personnel participated in multiple related outreach events throughout Jackson, Mississippi, as part of the annual Stennis Day at the Capitol activities, inspiring the Artemis generation with visits to Obama Magnet Elementary School, Whitten Preparatory Middle School, and the Jackson State University Spring Career Expo. Students at the elementary and middle schools visited interactive stations to learn about robotics, what it takes to train like an astronaut, and how astronauts live and work in space. At Jackson State, students learned what a career at NASA could look like and the many opportunities that are possible.

(Top left photo) Joe Schuyler, director of the Engineering and Test Directorate, tells students what it is like to live and work in space during an outreach event at Obama Magnet Elementary School in Jackson, Mississippi, on Feb. 16. Photo Credit: (Jackson Public Schools)

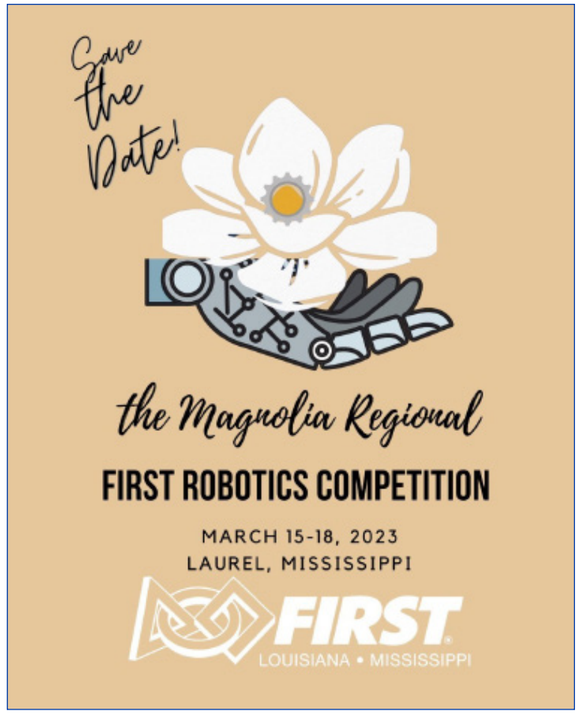
(Top right photo) Louis Thompson, a NASA Stennis education specialist, talks with students during the Jackson State University Spring Career Expo on Feb. 16.

(Bottom left photo) Michele Beisler, deputy program manager for NASA's Rocket Propulsion Test Program Office, shares a hands-on activity with a student at Obama Magnet Elementary School in Jackson, Mississippi, on Feb. 16. Photo Credit: (Jackson Public Schools)

(Bottom right photo) Pat Appelman, director of the Center Operations Directorate at NASA Stennis, speaks with students at Whitten Preparatory Middle School in Jackson, Mississippi, on Feb. 16.

NASA Co-Sponsors Inaugural Magnolia Regional FIRST Robotics Competition

Organizers are preparing to host 30-plus teams for an inaugural FIRST Robotics Magnolia Regional Competition in Laurel, Mississippi, on March 15-18, thanks, in large part, to NASA's Stennis Space Center, a lead sponsor for the event and a driving force in its launch.



Through the competition, NASA Stennis is joining with NASA's Robotics Alliance Project and co-sponsor Mississippi Power to bring to life all aspects of science, technology, engineering, and mathematics (STEM) in the Magnolia state. It particularly hopes to lead students from rural areas to pursue STEM studies and careers as NASA continues in its mission to inspire the world through discovery.

The new regional event is a critical milestone to enhance engagement with robotics programs and the K-12 community across the southeast region of the U.S.

"It is important to be able to model and provide examples to students who geographically do not get exposed to STEM activities," said NASA Stennis Office of STEM Engagement Director Kelly Martin-Rivers. "If it is something that you do not see around you, it is hard to understand how to get there. One importance of having a robotics regional and setting it in central Mississippi is to provide that access, opportunity, and visibility to an area of students that have not had a strong STEM connection."

The FIRST (For the Inspiration and Recognition of Science and Technology) Robotics Magnolia Regional Competition is scheduled at the Magnolia Center in Laurel, Mississippi. The event is free, open to the public, and offers students the opportunity to use STEM skills through teamwork and the excitement of competition.

The regional competition will feature two teams from Mexico, along with more than 30 high school teams from states, including Alabama, Louisiana, Mississippi, Missouri, Texas, and Tennessee. It also will serve as a championship-qualifying event to send several teams to the world championship competition in Houston, Texas, in April. The NASA Stennis workforce is helping to facilitate the Laurel event by providing judges and volunteers throughout the four days of activities. Additionally, nine of the teams scheduled to compete are considered NASA Stennis house teams, which means they have an ongoing relationship with NASA Stennis and a NASA engineer as their team mentor.

This includes five teams from Mississippi: Team Fusion from Gulfport; Chahta Warriors from Choctaw Central; Team Chaos from Picayune Memorial; Delta Overload from Gentry High School in Indianola; and Alpha Omega from Our Lady Academy in Bay St. Louis.

High school teams sponsored by NASA Stennis from Louisiana include: Team Combustion from Northshore; Prometheus from Mandeville; Tiger Robotics from Slidell; and Power Struck Girls from Academy of Our Lady in Marrero. In FIRST Robotics, high school teams receive identical parts kits and competition guidelines. They use the kits to design and build robots to compete in achieving competition goals.

For house teams, NASA Stennis engineers help students prepare for the competition. Students learn engineering and problem-solving skills that can be applied to the competition and real-world situations in the future. The teams each create an identity, raise funds to meet goals, and work to promote STEM in their community.

The 2023 season challenge, "Charged Up" challenges teams to reimagine the future of sustainable energy. The theme calls teams to explore ways to unlock the power of engineering to transform renewable energy and power a better future. For the regional competition, teams will build and program industrial-sized robots to play an action-packed game on a themed field.

The goal is to have the Magnolia Regional expose more students in rural areas to STEM and become an annual FIRST Robotics Competition, much like the Bayou Regional event in Louisiana, which NASA Stennis has supported since its inception. The Bayou Regional is scheduled for March 30-April 1 at the Pontchartrain Center in Kenner, Louisiana.

Teams are shown competing in the FIRST (For Inspiration and Recognition of Science and Technology) Robotics World Championship in Houston in April 2022. Teams compete at events such as the Magnolia Regional in Laurel, Mississippi, and Bayou Regional in Kenner, Louisiana, for the chance to advance to the annual world championship, scheduled this year for April 19-23 in Houston. Photo Credits: FIRST Robotics

For FIRST Robotics information, visit here.
For Magnolia Regional event information, visit here.
For Bayou Regional event information, visit here.
For more information about NASA's Stennis Space Center, visit here.

FIRST Robotics combines the excitement of sport with the rigors of science and technology.

Traveling Hubble Space Telescope Exhibit Opens at INFINITY Science

Visitors walk through the Hubble Traveling Exhibit during opening day activities on Feb. 11 at INFINITY Science Center. The new exhibit looks at the groundbreaking mission of NASA's Hubble Space Telescope since its launch in 1990. Visitors can view the exhibit at INFINITY Science Center, the official visitor center of NASA's Stennis Space Center, until Sept. 10. Photo Credits: INFINITY Science Center

Before NASA produced the James Webb Space Telescope as the largest and most powerful telescope, there was the Hubble Space Telescope, which has helped unlock secrets of the universe for more than 30 years.

As the Webb Space Telescope reveals more about the universe than ever before, it builds on the discoveries of Hubble, which continues its orbit around Earth. A new traveling exhibit unveiled on Feb. 11 at INFINITY Science Center, the official visitor center of NASA's Stennis Space Center, helps visitors learn more about the operation and impact of both space-based observatories.

The Hubble Traveling Exhibit, a 2,200-square-foot exhibit, arrived at INFINITY on Feb. 10 and was unveiled to visitors during a Feb. 11 opening. The exhibit is designed to engage visitors in the "magnificence and mystery of the Hubble mission" and introduce them to the new Webb telescope. The exhibit compares the telescopes and highlights some of the key differences between them.

The attraction features a scale model of Hubble, along with several satellite units that provide viewers with a hands-on experience of the same technology that allows Hubble to gaze at distant galaxies and the universe. In addition to learning about the life and history of Hubble, visitors will understand more about the challenges Hubble faced following its launch in 1990 and the role astronauts played in ensuing years to repair and service the orbiting satellite.

The Hubble Traveling Exhibit can be experienced until Sept. 10 at the INFINITY Science Center, which is located in Pearlington, Mississippi, adjacent to NASA Stennis, and is open Sunday through Thursday from 9 a.m. to 4 p.m.

NASA representative Maurice Henderson (r) talks with guests at INFINITY Science Center during opening weekend of the Hubble Traveling Exhibit.

NASA Celebrates Employees During February's Black History Month

NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Adrianne Peyton Ragan
Contracting Officer
NASA Office of Procurement

What does Black History Month mean to you?

Part of me wishes that we did not have to be in a position warranting a Black History Month observance, but due to the exclusion of rights that has occurred in the past and now, we are at a point where it is necessary.

Being and feeling included is powerful, so Black History Month is an effort to include a historically marginalized race and give light to a group that has come out of the darkness.

Who inspires you and why?

People, in general, inspire me. There are people – young and old – who are going through grief, pain, confusion, and other adversities, yet they are triumphant. They get up every day and face the world, along with their challenges, and climb the mountain to victory. People are resilient, and that is inspiring to see because it gives me hope each and every day to keep going.

Building a Legacy of Achievement, Connection, and Knowledge

NASA Stennis and NSSC are proud to celebrate Black History Month and recognize the diversity of the workforce contributing to the success of America's premier rocket propulsion test site.

NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Angela Hall
Management & Program Analyst
NASA Office of the Chief Financial Officer

What does Black History Month mean to you?

It is an opportunity to understand, uplift, and spotlight those who have made a difference in Black culture and history.

Who inspires you and why?

I am inspired by my parents who taught me to rely on my faith in Jesus Christ.

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NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Barry Robinson
B-2 Test Stand SLS EUS Block 1B Green Run Test Project Manager
NASA Engineering & Test Directorate

What does Black History Month mean to you?

This month is always a revelation of the accomplishments and achievements of not only the celebrated, but especially those unrecognized African Americans who have achieved and influenced change in the local, national, and sometimes international arenas or continue to do so.

Who inspires you and why?

I am inspired by all of the elders still with us who have experienced the lack and total disregard of civil rights and what it means to embrace and fight to keep those rights. There is a lot of knowledge and wisdom there that makes one pause and consider the consequences of not paying attention to details as laws are changed or reversed.

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NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Brian Everett
Software Quality Assurance Engineer
NASA Safety & Mission Assurance Directorate

What does Black History Month mean to you?

Black History Month, to me, means "remembrance." It is vital for me to remember what my ancestors endured so that I and my descendants can live a life of value, importance, and meaning.

Who inspires you and why?

I am greatly inspired by my grandfather, Mr. Melvin Stokes, who served as a U.S. Air Force photographer in the 1950s. While he was not allowed to participate in reconnaissance flights because of the color of his skin, I celebrate his strength in a time of adversity. During his 90 years on Earth, he has been a man of integrity, bravery, and respect. Through our conversations, the lessons I have learned and the wisdom I have gained have been invaluable to me. I salute you, Mr. Melvin Stokes!

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NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Darvin G. Bennett
Lead Equal Opportunity Specialist and Complaints Manager
SSC/NSSC Office of Diversity & Equal Opportunity

What does Black History Month mean to you?

My reference point for Black history takes me back to April 3, 1968, when my brother and sister stood outside in a pending storm at Mason Temple in Memphis to witness Dr. Martin Luther King Jr.'s "I've Been to the Mountaintop" speech. Then, that dreadful next day, my mother hurried home with the news that Dr. King had been assassinated not far from our Beale Street residence. Horror, sadness, fear, and unrest loomed over our city and in every community for days and months.

During this time, good people from other races, creeds, and colors throughout the nation started to stand against injustice. They marched and suffered beatings but did not waver in the fight for the justice and equality that could no longer be denied.

Who inspires you and why?

The person who inspires me the most is Dorothy Bennett-Cleveland. She was a doctor, caregiver, protector, educator, and counselor who laid an unshakable foundation for me. She demonstrated and modeled perseverance through circumstances and times that were not always favorable for Black people in 1930's America. Today, I stand on her shoulders and still sense her loving push that causes me to continue to lean forward in hope for all humanity.

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NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Tammy Pittman
Environmental Technician
Syncom Space Services (S3)

What does Black History Month mean to you?

It is a time to learn about and celebrate the accomplishments and contributions of the Black community, including Black-owned businesses, entrepreneurial ventures, and investments.

Who inspires you and why?

As an African American woman who has raised two children by myself – each of whom has a college degree – I hope my story of strength in adversity can be an inspiration to others.

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NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Terrance Jones
Deputy HR Director
NASA Stennis Office of Human Resources

What does Black History Month mean to you?

This month is important to me because it highlights and reminds me of the great strides and achievements African Americans have contributed to America and the world, while dealing with adversities.

Who inspires you and why?

I am inspired by anyone who strives to make this world a better place – by people who remember "the time is always right to do what is right," as Dr. Martin Luther King Jr. reminds us.

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NASA Stennis and NSSC Celebrate Black History Month: America's Legacy

Valerie Buckingham
Communications Integrator
NASA Office of Communications

What does Black History Month mean to you?

It is a time for me to reflect on the sacrifices, accomplishments, and courage of those who came before us.

Who inspires you and why?

I am inspired by the past and current elders of my family. As I am told the stories of their lives – funny and heartbreaking – I am amazed at their courage and savviness. I wish I could have met those that came before me. That is why I treasure those I still have, and I continue to learn from them every day.

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Hubble Space Telescope Peers at a Galactic Seascape

A "jellyfish galaxy" with trailing tentacles of stars hangs in inky blackness in this image from the NASA/ESA Hubble Space Telescope. As jellyfish galaxies move through intergalactic space, gas is slowly stripped away forming trails that resemble tendrils illuminated by clumps of star formation. These blue tendrils are visible below the core of this galaxy, giving it a jellyfish-like appearance. This particular jellyfish galaxy – known as JO201 – lies in the constellation Cetus, which is named after a sea monster from ancient Greek mythology. Text credit: European Space Agency (ESA) Image credit: ESA/Hubble & NASA, M. Gullieuszik

NASA in the News

Take The Next Giant Leap With NASA and Microsoft's Minecraft

NASA's Office of STEM Engagement and Microsoft have teamed up to helps kids unlock their creativity in a unique way. As kids worldwide build and explore their own blocky worlds within the Minecraft universe, they can now build and launch a rocket and blast off on an adventure to the Moon through a new Artemis-inspired set of worlds. Just like the real NASA Artemis team working to return humans to the Moon, gamers in these new Minecraft worlds can build and launch a rocket, guide their Orion spacecraft, and even establish a lunar base alongside their team. Developed through a partnership between Minecraft Education and NASA, Minecraft Artemis Missions were created to engage students ages 8 and up in NASA's next chapter in human spaceflight and encourage them to see themselves as future astronauts or scientists. Click here to learn more about how the real-world Artemis missions come to life.

New NASA Map Details 2023 and 2024 Solar Eclipses in the U.S.

The United States will witness solar eclipses in 2023 and 2024 and NASA has a new map that will keep individuals in the know about viewing opportunities. A solar eclipse happens when, at just the right moment, the Moon passes between the Sun and Earth. Through observations from several NASA missions, the map details the path of the Moon's shadow as it crosses the contiguous U.S. during the annular solar eclipse on Oct. 14, 2023, and total solar eclipse on April 8, 2024. The dark paths across the continent show where observers will need to be to see the "ring of fire" when the Moon blocks all but the outer edge of the Sun during the annular eclipse, and the ghostly-white outer atmosphere of the Sun (the corona) when the Moon completely blocks the Sun's disk during the total eclipse. The map also shows where and how much the Sun will be partially eclipsed by the Moon. Click here to view the map.

NASA Public Affairs Specialist Inspires Artemis Generation

Engineers at NASA's Stennis Space Center regularly test rocket engines and propulsion systems that will help land the first woman and first person of color on the Moon.

Meanwhile, NASA Public Affairs Specialist Samone Wilson works daily to communicate how work at NASA Stennis and throughout the agency is continuing exploration of the universe for the benefit of all and to inspire the next generation of explorers.

NASA Public Affairs Specialist Samone Wilson captures the attention of the Artemis generation through her work in the Office of Communications at NASA's Stennis Space Center. Wilson was recently named a Boeing Starliner Launch Honoree by the Spaceflight Awareness Program.

"The job we do helps people feel the excitement and passion for the amazing work and technological advancements made possible by America's space agency," Wilson said.

The Hattiesburg native and resident is involved in all aspects of public engagement, where she leads outreach efforts, the speakers bureau, and guest operations, among other duties. Of late, much of her focus has been on telling the Artemis story and its progress in returning humans to the lunar surface in preparation for eventual missions to Mars.

Wilson began at NASA in 2010 as a media student while completing her bachelor's degree in journalism at The University of Southern Mississippi. Early on, she helped NASA Stennis establish a social media presence, which now has more than 380,000 followers on multiple platforms.

"It is such an honor to share NASA's story and the career possibilities with people from all walks of life, especially those that might not normally be exposed to such opportunities," Wilson said. "It brings great joy to see their faces light up when they know that people just like them work for NASA. Representation truly matters."

After leaving NASA Stennis in the summer of 2017, Wilson returned to work in her current role within the Office of Communications in October 2019. Since then, among other achievements, she has expanded the Space Sprouts initiative in an effort to reach preschool students and spur early interest in space and STEM (science, technology, engineering, and math). As a result, thousands have been reached through the program.

The public affairs specialist does not have to look far for motivation as she sees how proud her daughter, Sydni, is in knowing her mother works at NASA. The 5-year-old has developed a love for math and science at an early age as well. Wilson was not too far from her daughter's age when she had an impactful space memory that may have put her on the path to where she finds herself now. Family movie nights were always something eagerly anticipated, and when she was 7, Wilson watched the movie "Apollo 13."

The movie left her fascinated at the perseverance of the mission crew in making it home safely. She especially felt a connection with astronaut Fred Haise after learning he grew up an hour south of her. Little did Wilson know that years later she would have the opportunity to work alongside Haise. Just as the Apollo-based movie inspired Wilson, that is what she hopes to do for others in sharing about Artemis and other agency and NASA Stennis activities.

"Being involved in both Green Run testing (of the Artemis I core stage) at Stennis where we simulated the launch and then working the actual Artemis I launch were two experiences that I will never forget," Wilson said. "Both were important agency milestones that moved us one step closer to sending the first woman and first person of color to the Moon.

"As an African American woman, I'm so excited to see the agency that I love so much be intentional about creating a diverse and inclusive atmosphere where everyone can feel valued and represented," Wilson continued. "I look forward to inspiring the Artemis generation, just as I have been inspired."

Apollo 13 – The Problem Solved In Houston

"Houston, we've had a problem" is a quote many remember from NASA's Apollo 13. The mission that began to demonstrate precision lunar landings and explore sites on the Moon finished as a "successful failure" because of the experience gained in rescuing the Apollo 13 crew.

Apollo 13, which was to be the third lunar landing attempt, lifted off April 11, 1970, with crew members Jim Lovell, mission commander; Jack Swigert, command module pilot; and Fred Haise, lunar module pilot and native Biloxian.

Two days later, shortly before 9 p.m., the astronauts ended a television broadcast in which they conducted a spacecraft tour.

Approximately six minutes after the end of the broadcast, they were about 200,000 miles from Earth when Haise completed the shutdown of the lunar module, and Swigert changed the altitude of the craft to get photographs of a passing comet.

Sensors in one of the service module's oxygen tanks were malfunctioning and Mission Control Center, located at NASA's Johnson Space Center in Houston, told Swigert to activate the stirring fans to ensure the pressure readings were more accurate.

The crew heard a loud bang approximately 90 seconds later and felt vibrations in the command module. Oxygen tank No. 2 blew up, which caused the No. 1 tank to fail. The command module lost electricity and water and shut down to save the limited power remaining for re-entry.

As NASA did not have shutdown procedures for the command module, ground controllers in Houston developed and tested them in the simulator before relaying them to the crew.

With the command module shut down, the crew moved to the lunar module Aquarius and used it as a lifeboat. The lunar module, used for a controlled landing on the Moon, was now the crew's primary way to steer the spacecraft back to Earth.

A water level view shows the recovery operations of Apollo 13 in the South Pacific Ocean on April 17, 1970, as the three astronauts leave their spacecraft. Command Module Pilot Jack Swigert (facing away from camera) is in the life raft, while Lunar Module Pilot Fred Haise steps into the life raft, and Commander Jim Lovell leaves the spacecraft. The three crewmembers were picked up by helicopter and flown to the prime recovery ship, USS Iwo Jima, as the United States Navy underwater demolition team assisted with recovery operations. The Apollo 13 command module splashed down at 12:07:44 p.m. CST on April 17, 1970, to safely conclude a perilous space flight. Though the Apollo lunar landing mission was canceled, a disastrous loss of three astronauts was averted.

Using the Sun as a navigation star, they completed a series of engine burns to make certain of a proper trajectory to return to Earth. Once re-entering the atmosphere, the crew transferred from the lunar module to the command module.

The most remarkable achievement of mission control was quickly developing procedures for powering up the command module after its long, cold sleep. Flight controllers wrote the documents for this innovation in three days, instead of the usual three months. Apollo 13 successfully splashed down on April 17, 1970, in the Pacific Ocean, just southeast of American Samoa.

"[Apollo 13] was a failure in its initial mission; however, it was a tremendous success in the ability of people to get together, like the mission control team working with what they had and working with the flight crew to turn what was almost a certain catastrophe into a successful recovery," said Apollo 13 Commander Lovell.

Hail & Farewell

NASA welcomes the following:

Holly Hallal	Budget Analyst	Office of Chief Financial Officer
Samson Cantu	Logistics Management Specialist	Center Operations Directorate
Alina Davis	Budget Analyst	Office of Chief Financial Officer
Jacob Haasl	Architect	Center Operations Directorate

Office of Diversity and Equal Opportunity

Celebrating Women Who Tell Our Stories

March marks the celebration of Women's History Month. The celebration of Women's History Month originated in Sonoma, California, in 1978. It included school presentations about women's contributions to culture, history, and society and an essay contest for students. Women's History Month coincides with International Women's Day, observed each year on March 8.

The National Women's History Alliance (NWHA) announced this year's Women's History Month theme as, "Celebrating Women Who Tell Our Stories." NWHA encourages the recognition of women, past and present, who have been active in all forms of media and storytelling.

The recognition allows one to revisit and learn about the collective history through the lens of gender and race. Analyzing the works of women in all forms of media and storytelling, can expand one's knowledge of the past and help shape future society. Read more about five women who have contributed to the storytelling of women's history.

- **Toni Morrison** (1931-2019) was known for her study of the Black female experience, within the Black community. "The Bluest Eyes," written in 1970, follows an adolescent Black girl who obsesses over the beauty standards upheld by white society. In the novel, Morrison explores these themes through a character that longs to have blue eyes. Additionally, Morrison wrote "Beloved" in 1987, which won critical acclaim by receiving the Pulitzer Prize for fiction. The novel is based on a true story of a runaway slave who, at the point of recapture, kills her infant daughter to spare her a life of slavery. A film adaptation of the novel was released in 1998.

- **Maxine Hong Kingston** (1940-) is a first-generation Chinese American whose work revolves around her Chinese heritage and life experiences. "The Woman Warrior: Memoirs of a Girlhood Among Ghosts," written in 1976, is described as combining myth, family history, folktales, and memories of the experience of growing up within two conflicting cultures. The memoir won the 1976 National Book Critics' Circle Award for nonfiction. In 1980, Kingston utilized the same narrative technique to create "China Men," which tells the experiences of the men in her family and the story of Chinese immigration. The novel relates the told stories to slave labor, loneliness, and discrimination. It later won the American Book Award for nonfiction. Most recently, Kingston received the National Medal of Arts in 2014.

- **Jovita Idar** (1885-1946) was a Mexican American journalist, activist and suffragist. In 1903, Idar joined her two brothers at her father's newspaper, La Crónica. She often wrote articles speaking about activism, racism, and women's suffrage. In 1911, she began working at El Progreso newspaper. During this time, Idar wrote articles protesting the mismanagement of Mexico's border, resulting in a confrontation with the Texas Rangers. The confrontation would later shut El Progreso down. Later in life, Idar became the editor of El Heraldo Cristiano, where she continued her advocacy.

- **Maya Angelou** (1928-2014) was an African American poet, memoirist, screenwriter, and actress. One of her most popular works, "I Know Why the Caged Bird Sings," shares traumatic events that occurred in her early life. Angelou continued her autobiographies with several books, including "Father Together in My Name," "The Heart of a Woman," "All God's Children Need Traveling Shoes," and "A Song Flung Up to Heaven." In 1966, Angelou wrote "Black, Blues, Black," a 10-episode TV series that explored the role of African culture in American life. After her debut as a screenwriter, Angelou wrote "Georgia, Georgia," a film drama making her the first African American woman to have a screenplay produced as a feature film. Angelou moved in front of audiences in 1973 with "Look Away," which earned her a Tony Award nomination. She also acted in "Poetic Justice, How to Make an American Quilt, and Roots." Lastly, Angelou directed "Down in the Delta" in 1998. For her work, Angelou was awarded the Presidential Medal of Freedom in 2011.

- **Marjory Stoneman Douglas** (1890-1998) was an American journalist who is credited as the "Guardian of the Glades." In 1908, Douglas began working for the Miami Herald as a reporter and editor. During World War I, Douglas enlisted in the Naval Reserve, becoming the first woman from Florida to do so. Once the war was over, Douglas was named assistant editor at the Miami Herald, and began writing editorials about the consequences of Florida's rapid commercial development. During the 1930s, Douglas joined other advocates to support the initiative to designate the Florida Everglades as a National Park. Douglas continued to advocate for nature conservation and was awarded the Presidential Medal of Freedom in 1993.

The NWHA recognizes many more women who have been active in different forms of media. For the full list, visit here.

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