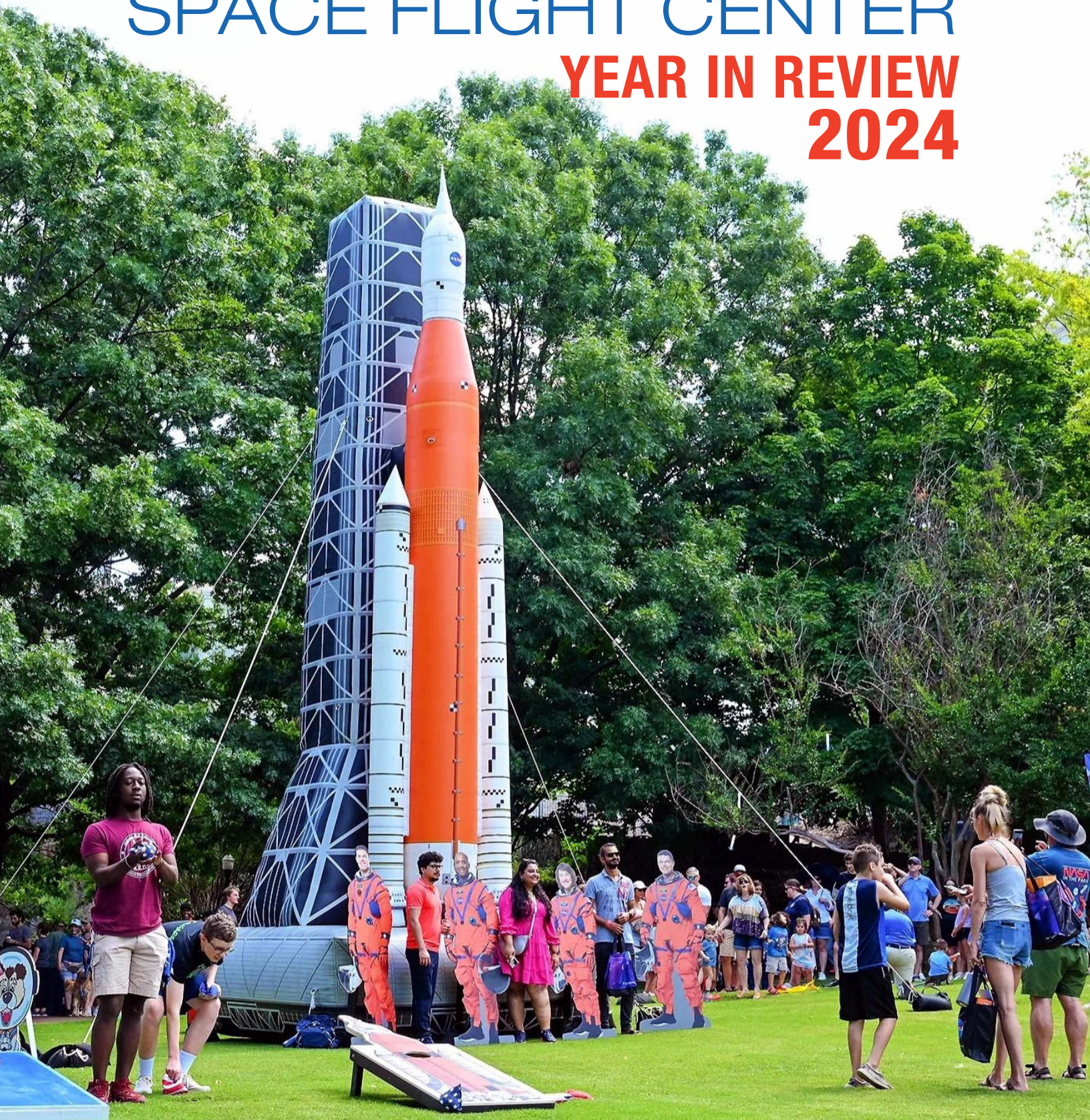
National Aeronautics and
Space Administration

MARSHALL
SPACE FLIGHT CENTER
YEAR IN REVIEW
2024



DIRECTOR'S MESSAGE

LOOKING BACK ON MARSHALL'S INCREDIBLE ACHIEVEMENTS IN 2024

This has been a tremendous year for NASA and Marshall Space Flight Center. Throughout 2024, we have showcased our ability to innovate and inspire for the benefit of all humanity. Marshall continues to lead the way in space exploration, making technological advancements and establishing partnerships that push the boundaries of what's possible. These achievements are a testament to the commitment, ingenuity, and passion of Marshall's exceptional workforce.

In 2024, Marshall played a pivotal role in the Artemis campaign, delivering on milestones like the rollout of the Artemis II Space Launch System core stage from the Michoud Assembly Facility and the delivery of the Artemis II launch vehicle stage adapter to NASA's Kennedy Space Center, built right here at Marshall.

The Human Landing System program also made remarkable progress this year, solidifying Marshall's leadership in lunar exploration. SpaceX's Starship conducted test flights, yielding data for Artemis III, while Blue Origin advanced its design as a second lunar lander provider.

Marshall's propulsion expertise reached new heights with the Rapid Analysis and Manufacturing Propulsion Technology (RAMPT) project, which earned the prestigious NASA Innovation of the Year title. This recognition underscores the groundbreaking advancements RAMPT has made in revolutionizing propulsion systems through 3D printing.

In science, the Chandra X-ray Observatory celebrated 25 years of discovery, and the Imagining X-ray Polarimetry Explorer (IXPE) team earned high honors by receiving the prestigious Bruno Rossi Prize, recognizing their significant contributions to high-energy astronomy.

Marshall remained vital to NASA's Commercial Crew Program, ensuring safe and reliable transportation for astronauts to and from the International Space Station. Our engineering and analysis teams supported the success of crewed missions aboard SpaceX's Crew Dragon and Boeing's Starliner, including Crew-8 and Crew-9, through certification, testing, and operational readiness evaluations. Meanwhile, our Payload Operations Integration Center continued its role as the heartbeat of space station science, providing around-the-clock support for astronauts and researchers worldwide. From managing complex experiments to advancing critical research in human health, materials science, and space technology, our teams delivered mission success and enabled scientific discovery.

This year, we also strengthened our workplace culture, fostered collaboration, and empowered our teams to excel. Strengthening the "Fabric of Marshall" included establishing Center Action Teams, which created opportunities for employees from across the center to turn ideas into actions and reinforce our shared sense of purpose. We also kicked off our Environment Matters leadership series for supervisors to equip them with tools to build stronger teams, enhance communication, and cultivate a positive environment where everyone can thrive.

Finally, we were thrilled to welcome back NASA in the Park and reconnect with our community in Huntsville. This family-friendly event brought together about 14,000 people to learn about Marshall's missions, explore hands-on exhibits, and interact with our talented workforce.

These are truly just the highlights of Marshall's incredible achievements in 2024. Our teams have delivered exceptional results across every mission, program, and project, showcasing the ingenuity, dedication, and spirit that define Marshall's legacy.

Thank you for an inspiring 2024. Here's to reaching new heights in 2025 and celebrating our 65th anniversary and rich legacy as leaders in space exploration!

Joseph Pelfrey, Director
Marshall Space Flight Center

On the cover: Visitors enjoy games and photo opportunities during the NASA in the Park event on June 22. (NASA/Charles Beason)

JANUARY

IXPE Team Awarded Prestigious Rossi Prize

NASA's IXPE (Imaging X-ray Polarimetry Explorer) was awarded a top prize in high-energy astronomy. The High Energy Astrophysics Division of the American Astronomical Society (AAS) awarded the 2024 Bruno Rossi Prize to retired NASA astrophysicist Martin Weisskopf, Italian Space Agency principal investigator Paolo Soffitta, and their team for development of IXPE, "whose novel measurements advance our understanding of particle acceleration and emission from astrophysical shocks, black holes and neutron stars," according to AAS. IXPE is led by NASA's Marshall Space Flight Center.

Marshall Team Supports Space Night with the Huntsville Havoc

Marshall team members joined the Huntsville Havoc for Space Night on Jan. 26. The sold-out game featured more than 4,900 fans for a themed hockey game designed to celebrate Huntsville's robust aerospace community. Thousands of space and hockey fans enjoyed exhibits and outreach provided by Marshall team members from across the center, including the Centennial Challenges Program; IXPE; Technology Demonstrations Missions; and the SLS (Space Launch System) Program. The successful event led to another Space Night with the Havoc in November.

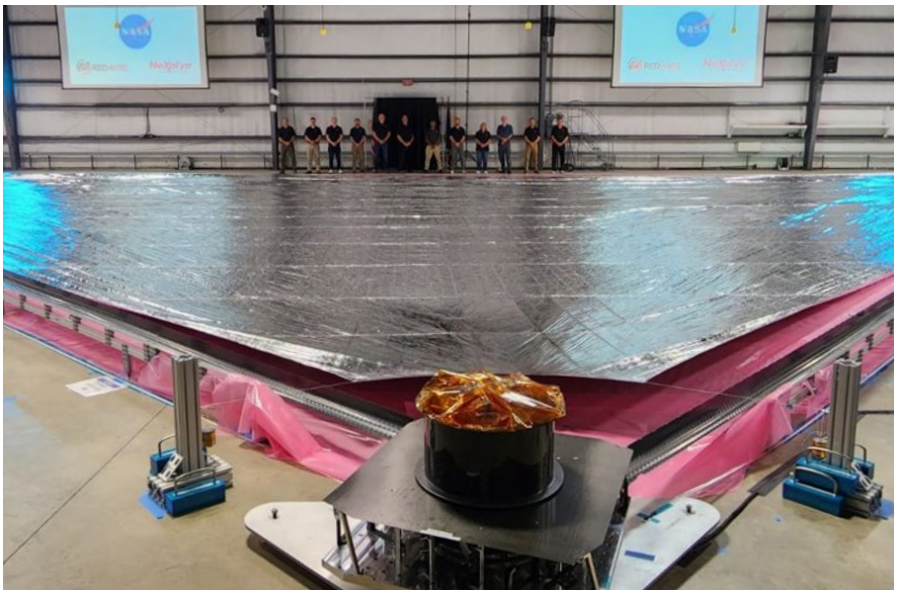
Mission Success is in Our Hands Series

Mission Success is in Our Hands is a safety initiative collaboration between Marshall and Jacobs Engineering. The goal of the lecture series is to help team members make meaningful connections between their jobs and the safety and success of NASA and Marshall missions through shared experiences discussions, awards, and recognition. Guest speakers echoed that theme throughout the series in 2024. Those delivering presentations included Bob Conway, NASA Safety Center deputy director; and Mike Sarafin, Artemis mission manager and Mission Management Team chair. The series includes a presentation of the Golden Eagle Award, which promotes awareness and appreciation for flight safety. The initiative is also highlighted through testimonial banners across the center.

FEBRUARY

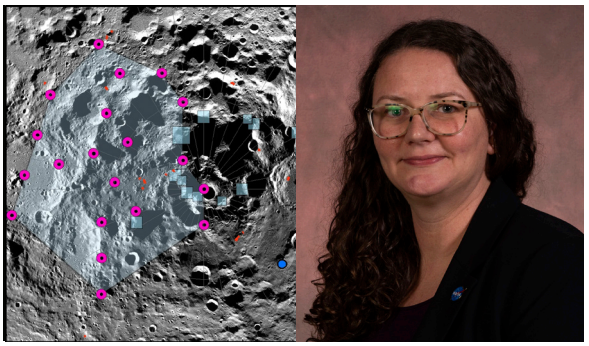
NASA Administrator Names Pelfrey as New Marshall Director

NASA Administrator Bill Nelson on Feb. 5 named Joseph Pelfrey as Marshall's new director. "Joseph is a respected leader who shares the passion for innovation and exploration at NASA Marshall. As center director, he will lead the entire Marshall workforce, which includes a world-renowned team of scientists, engineers, and technologists who have a hand in nearly every NASA mission," said Nelson. "I am confident that under Joseph's leadership, Marshall will continue to make critical advancements supporting Artemis and Moon to Mars that will benefit all humanity." Said Pelfrey, "Marshall is renowned for its expertise in exploration and scientific discovery, and I am honored and humbled to be chosen to lead the center into the future."



Solar Sail Technology Passes Crucial Deployment Test

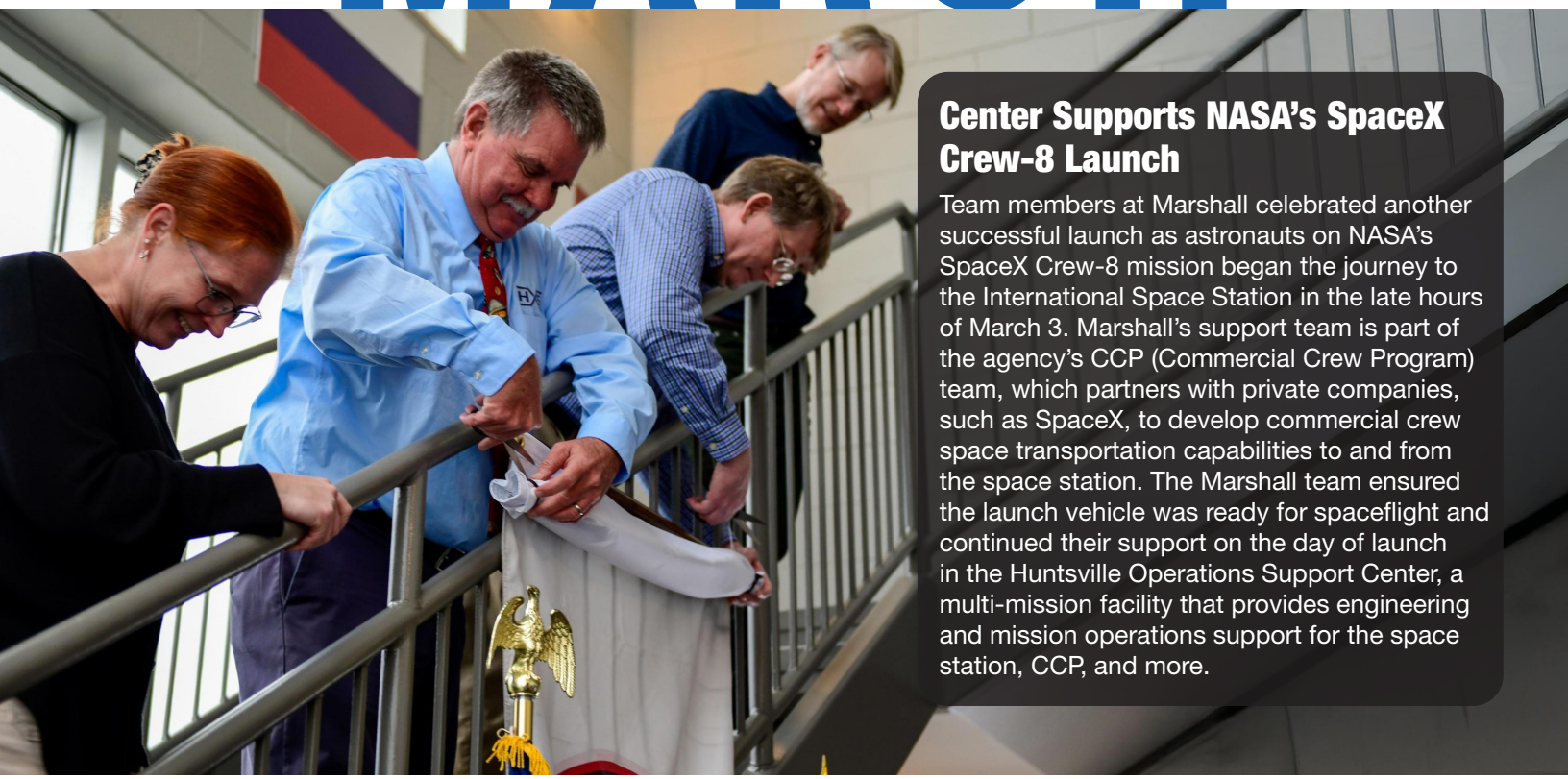
NASA continues to unfurl plans for solar sail technology as a promising method of deep space transportation. The agency cleared a key technology milestone with the successful deployment of one of four identical solar sail quadrants. Marshall leads the solar sail team, comprised of prime contractor Redwire, which developed the deployment mechanisms and the nearly 100-foot-long booms, and subcontractor NeXolve, of Huntsville, which provided the sail membrane. In addition to leading the project, Marshall developed the algorithms needed to control and navigate with the sail when it flies in space. The sail is a propulsion system powered by sunlight reflecting from the sail, much like a sailboat reflects the wind.



Marshall Chief Scientist Provides Valuable Insight into NASA Moonquake Study

The Moon holds clues to the evolution of Earth, the planets, and the Sun, and a NASA-funded study is helping scientists better understand some of the mysteries beneath the surface of our nearest cosmic neighbor. The co-author of that study is Marshall chief scientist Dr. Renee Weber, who is also a member of NASA's Artemis Science Team—a broad group of scientists from around the agency that are working to commence a new era of deep space science and exploration. As a lunar seismologist and lunar geophysicist, Weber provides expertise to the Artemis Science Team, including knowledge of the types of seismic events that can occur on the Moon, to better understand its internal geology and surface environment.

MARCH



Center Supports NASA's SpaceX Crew-8 Launch

Team members at Marshall celebrated another successful launch as astronauts on NASA's SpaceX Crew-8 mission began the journey to the International Space Station in the late hours of March 3. Marshall's support team is part of the agency's CCP (Commercial Crew Program) team, which partners with private companies, such as SpaceX, to develop commercial crew space transportation capabilities to and from the space station. The Marshall team ensured the launch vehicle was ready for spaceflight and continued their support on the day of launch in the Huntsville Operations Support Center, a multi-mission facility that provides engineering and mission operations support for the space station, CCP, and more.

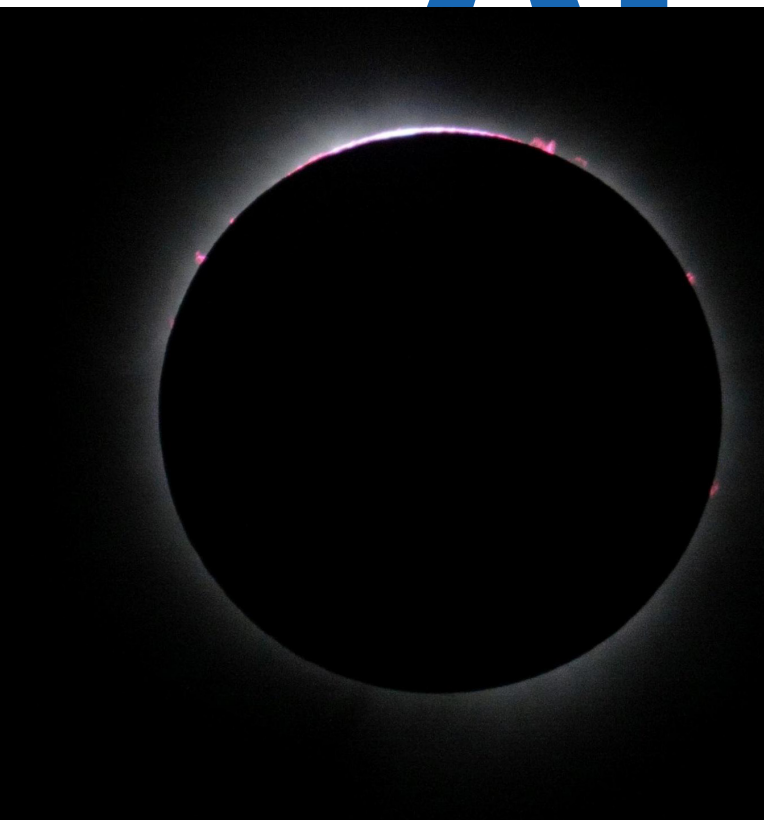
NASA Lights 'Beacon' on Moon with Autonomous Navigation System Test

For a total of 30 minutes, NASA lit a beacon on the Moon—successfully testing a sophisticated positioning system that will make it safer for Artemis-era explorers to visit and establish a permanent human presence on the lunar surface. The Lunar Node 1 demonstrator, or LN-1, is an autonomous navigation system intended to provide a real-time, point-to-point communications network on the Moon. The system would be a marked improvement over conventional, Earth-based radio data relays. Marshall engineers designed, developed, integrated, and tested LN-1 as part of the NPLP (NASA-Provided Lunar Payloads) project funded by the agency's Science Mission Directorate.

Marshall Celebrates Alabama Space Day in Montgomery

Team members from Marshall joined Montgomery-area students, the U.S. Space & Rocket Center, NASA's aerospace partners, and elected officials in celebrating the aerospace industry's impact in Alabama on March 5. This year's event kicked off at the state Capitol in Montgomery with a proclamation from Alabama Gov. Kay Ivey declaring March 5 as Alabama Space Day. Students from the Montgomery area were then invited to take part in various STEM (science, technology, engineering, and mathematics) activities, chat with an astronaut, hear what it takes to become a NASA intern or work at Marshall, and check out exhibits highlighting NASA's many programs, including SLS (Space Launch System), the Human Landing System, and Centennial Challenges.

APRIL



NASA, Marshall, and Arkansas Celebrate Total Solar Eclipse

More than 100,000 people from across the world gathered April 8 in Russellville, Arkansas, to witness an astronomical syzygy—the alignment of the Sun, Moon, and Earth—creating a solar eclipse with totality lasting 4 minutes and 12 seconds. Team members from Marshall and other NASA centers traveled to Arkansas to provide educational opportunities related to the eclipse. Experts from NASA's Stennis Space Center, Kennedy Space Center, and NASA Headquarters, along with representatives of the Arkansas Air National Guard and the Paris Observatory in Muedon, France, joined the Marshall team.

Agency Announces 30th Human Exploration Rover Challenge Winners

NASA announced the winners of the 30th Human Exploration Rover Challenge (HERC) April 22, with Parish Episcopal School, from Dallas, winning first place in the high school division, and the University of Alabama in Huntsville, capturing the college/university title. The annual engineering competition—one of NASA's longest standing challenges—held its concluding event April 19 and April 20, at the U.S. Space & Rocket Center in Huntsville. More than 600 students with 72 teams from around the world participated as HERC celebrated its 30th anniversary as a NASA competition. HERC is managed by NASA's Southeast Regional Office of STEM Engagement at Marshall. Since its inception in 1994, more than 15,000 students have participated in HERC.

70 Student Teams Participate in 2024 Student Launch Challenge

NASA's 2024 Student Launch challenge brought students from colleges, universities, high schools, middle schools, and informal education groups to launch amateur rockets and payloads April 13 at Bragg Farms in Toney, Alabama. Seventy teams from 24 states and Puerto Rico participated with 53 teams launching in-person. Marshall's Office of STEM Engagement hosts Student Launch to encourage students to pursue careers in STEM through real-world experiences. Winners were announced during a virtual awards ceremony in June. The challenge will celebrate its 25th anniversary in 2025.

MAY

Marshall, Michoud Leadership Join Industry for Louisiana Space Day

NASA's Michoud Assembly Facility, leading aerospace companies, and GNO Inc. hosted Louisiana Space Day 2024 at the Louisiana State Capitol in Baton Rouge on May 8. The event marked a return to the Capitol following a year-long hiatus, and a rebranding from its former incarnation as NASA Day in Baton Rouge. While NASA maintained a major role in the day's activities, Louisiana Space Day included participation from commercial and educational partners with emphasis on Louisiana's contribution to space exploration, the critical impact the industry has on the state's economy, as well as the importance of STEM education to maintain a skilled workforce. Marshall manages Michoud.

Marshall's Kurt Polzin Receives Engineer of the Year Award

Advanced space nuclear propulsion systems are critical to NASA's Moon to Mars vision. On May 15, one of the individuals at the forefront of those future exploration efforts was honored for his contributions. Kurt Polzin, chief engineer for the Space Nuclear Propulsion Office at Marshall, received the American Institute of Aeronautics and Astronautics Engineer of the Year award during its awards gala at the John F. Kennedy Center for Performing Arts in Washington. Since 2021, Polzin has overseen NASA's nuclear propulsion technology development and maturation efforts. He's also the chief engineer for the agency's partnership with the Defense Advanced Research Projects Agency on the Demonstration Rocket for Agile Cislunar Operations (DRACO) program.

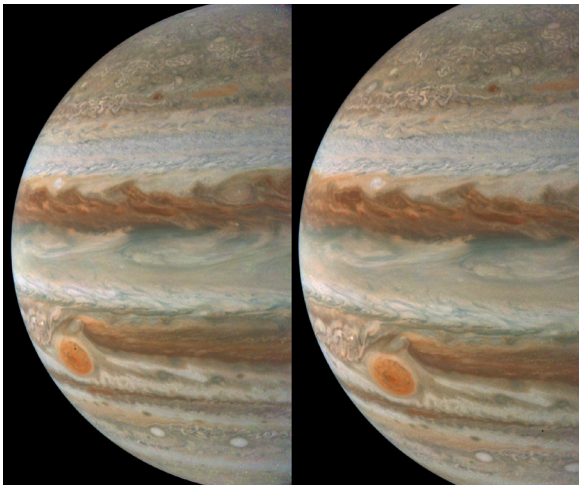
Rae Ann Meyer Named Deputy Director of Marshall

Rae Ann Meyer was announced as Marshall's new deputy director in May. In this role, Meyer assists in leading Marshall's nearly 7,000 on-site and near-site civil service and contractor employees and an annual budget of approximately $5 billion. She will also help guide the center as it continues to deliver vital propulsion systems and hardware, flagship launch vehicles, world-class space systems, state-of-the-art engineering technologies and cutting-edge science and research projects and solutions. "I am thrilled to partner with Rae Ann in leading Marshall into this new era of space exploration," said Center Director Joseph Pelfrey.

JUNE

Blasting into Summer: Thousands Enjoy NASA in the Park

It was a super Saturday in the park to celebrate space and the Rocket City. Marshall joined with Downtown Huntsville Inc. and other community partners to host NASA in the Park, a public outreach event that attracted thousands to Big Spring Park East in Huntsville on June 22. Attendees of all ages packed the park to enjoy NASA exhibits and science demonstrations, giveaways, food vendors, and live music at the event. About 14,000 people attended, according to official estimates. "Thank you to all our MSFC team members who helped make this year's NASA in the Park a huge success," said Marshall Director Joseph Pelfrey. "It was truly incredible to see the overwhelming support and participation we received from our partners in government, industry, academia, and the community."



Juno Mission Spots Jupiter's Tiny Moon Amalthea

NASA's Juno mission captured new views of Jupiter during its 59th close flyby of the giant planet. They provide a good look at Jupiter's colorful belts and swirling storms, including the Great Red Spot. Close examination reveals something more: two glimpses of the tiny moon Amalthea. Amalthea is the reddest object in the solar system, and observations indicate it gives out more heat than it receives from the Sun. Juno is part of NASA's New Frontiers Program, which is managed at Marshall for the agency's Science Mission Directorate. The mission seeks answers to questions about the origin and evolution of Jupiter, our solar system, and giant planets across the cosmos.

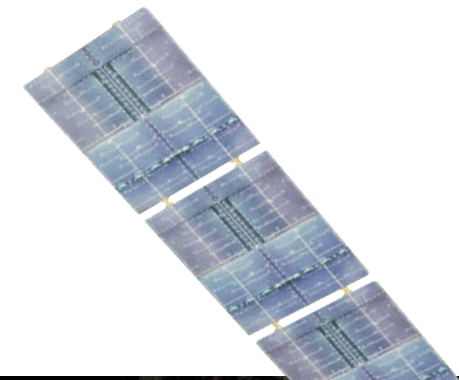
Marshall Engineers Unveil Versatile, Low-cost Hybrid Engine Testbed

In June, engineers at Marshall unveiled an innovative, 11-inch hybrid rocket motor testbed. The new hybrid testbed, which features variable flow capability and a 20-second continuous burn duration, is designed to provide a low-cost, quick-turnaround solution for conducting hot-fire tests of advanced nozzles and other rocket engine hardware, composite materials, and propellants. "It's time consuming and costly to put a new solid rocket motor through its paces—identifying how materials perform in extreme temperatures and under severe structural and dynamic loads," said Benjamin Davis, branch chief of the Solid Propulsion and Pyrotechnic Devices Branch of Marshall's Engineering Directorate. "The hybrid testbed offers an exciting, low-cost solution."

JULY

NASA Ships Moon Rocket Stage Ahead of First Crewed Artemis Flight

NASA rolled out the SLS rocket's core stage for the Artemis II test flight from Michoud on July 16 for shipment to Kennedy. The rollout marked key progress on the path to NASA's first crewed mission to the Moon under the Artemis campaign. Using highly specialized transporters, engineers maneuvered the giant core stage from inside Michoud to NASA's Pegasus barge. The barge ferried the stage more than 900 miles to Kennedy, where engineers prepared it in the Vehicle Assembly Building for attachment to other rocket and Orion spacecraft elements. Technicians moved the SLS rocket stage from inside Michoud on the 55th anniversary of the launch of Apollo 11 on July 16, 1969.



Agency Announces Winners of Inaugural Human Lander Challenge

NASA's 2024 Human Lander Challenge (HuLC) Forum brought 12 university teams from across the United States to Huntsville to showcase their innovative concepts for addressing the complex issue of managing lunar dust. The 12 finalists presented their final presentations to a panel of NASA and industry experts from NASA's Human Landing Systems Program at the HuLC Forum. Participants in the 2024 Human Lander Challenge developed proposed systems-level solutions that could be potentially implemented within the next 3–5 years to manage or prevent clouds of dust—called lunar plume surface interaction—that form as a spacecraft touches down on the Moon. NASA announced the University of Michigan team as the selected overall winner and recipient of a $10,000 award.

25 Years On, Chandra Highlights Legacy of Nasa Engineering Ingenuity

NASA's Chandra X-ray Observatory marked its 25th anniversary in space July 23. Marshall has continued to manage the program for NASA ever since development and testing began. "Everything Chandra has shown us over the last 25 years—the formation of galaxies and super star clusters, the behavior and evolution of supermassive black holes, proof of dark matter and gravitational wave events, the viability of habitable exoplanets—has been fascinating," said retired NASA astrophysicist Martin Weisskopf, who led Chandra scientific development at Marshall beginning in the late 1970s. "Chandra has opened new windows in astrophysics that we'd hardly begun to imagine in the years prior to launch."

AUGUST

Additive Manufacturing Project Shapes Future for NASA

The widespread commercial adoption of additive manufacturing technologies, commonly known as 3D printing, is no surprise to design engineers at Marshall whose research created stronger, lighter weight materials and new manufacturing processes to make rocket parts. NASA's RAMPT (Rapid Analysis and Manufacturing Propulsion Technology) project is on the cutting-edge of additive manufacturing—helping the agency and industry produce new alloys and additively manufactured parts, commonly referred to as 3D printing. The RAMPT project continues to progress and receive recognition from NASA and industry partners. The RAMPT team was awarded NASA's 2024 Invention of The Year award for its excellence and contributions to NASA and the commercial industry's deep space exploration goals.

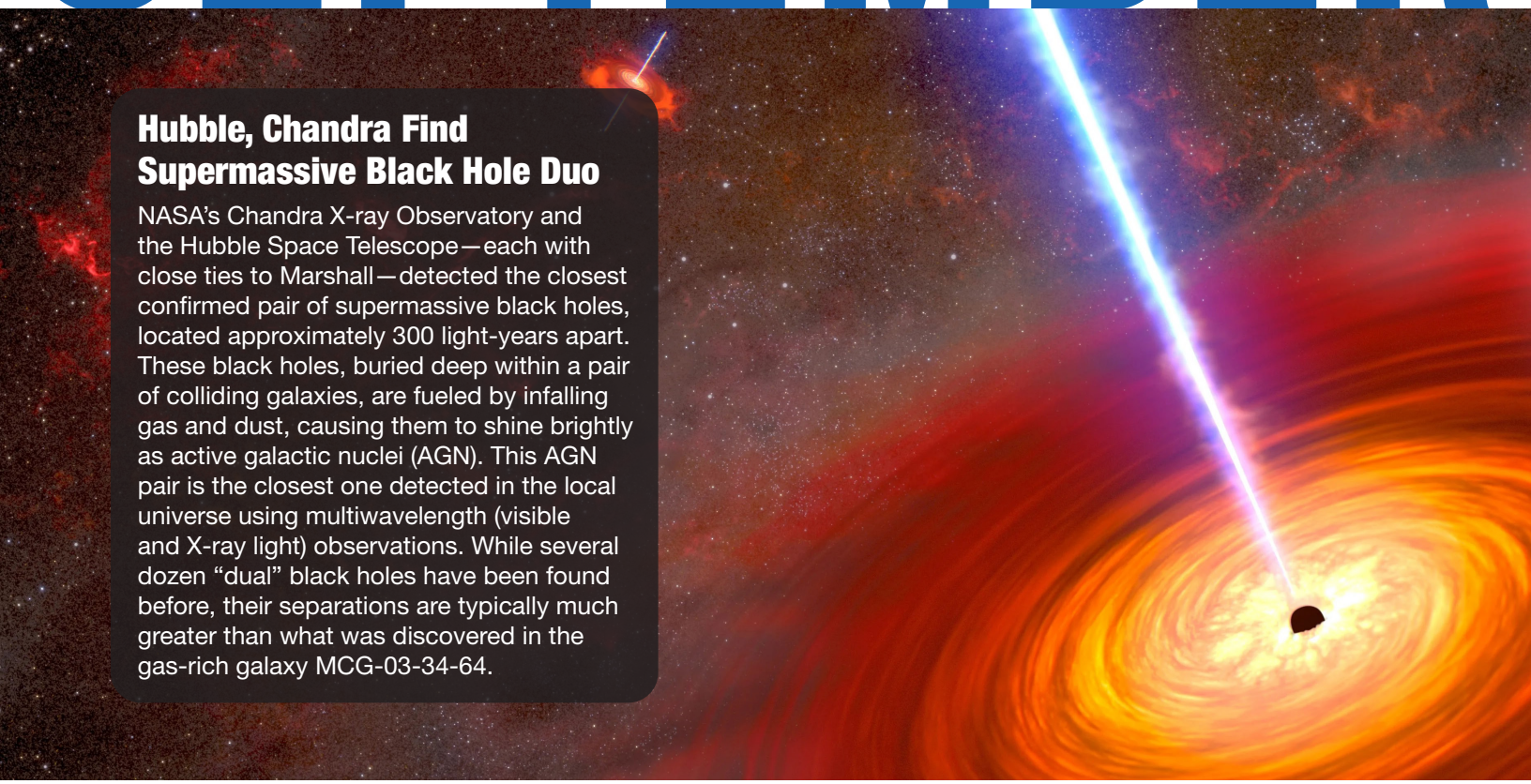
Agency Awards $1.25 Million to 3 Teams at Deep Space Food Finale

NASA awarded a total of $1.25 million to three U.S. teams in the third and final round of the agency's Deep Space Food Challenge. The teams delivered novel food production technologies that could provide long-duration human space exploration missions with safe, nutritious, and tasty food. Since the challenge's launch in 2021, more than 300 teams from 32 countries have participated by submitting innovative food system designs. The competition, conceived and managed by NASA Centennial Challenges at Marshall, is a first-of-its-kind coordinated effort between NASA and CSA (Canadian Space Agency), which ran its own challenge in parallel.

NASA Moves Artemis II Rocket Adapter to Pegasus Barge

NASA rolled out a key piece of space flight hardware for the SLS rocket for the first crewed mission of NASA's Artemis campaign from Marshall for shipment to Kennedy. The cone-shaped launch vehicle stage adapter connects the rocket's core stage to the upper stage and helps protect the upper stage's engine that will help propel the Artemis II test flight around the Moon, slated for 2026. Crews moved the adapter out of Marshall's Building 4708 to the agency's Pegasus barge Aug. 21. The barge ferried the adapter first to Michoud, where crews will pick up additional SLS hardware for future Artemis missions, before traveling to Kennedy.

SEPTEMBER



Hubble, Chandra Find Supermassive Black Hole Duo

NASA's Chandra X-ray Observatory and the Hubble Space Telescope—each with close ties to Marshall—detected the closest confirmed pair of supermassive black holes, located approximately 300 light-years apart. These black holes, buried deep within a pair of colliding galaxies, are fueled by infalling gas and dust, causing them to shine brightly as active galactic nuclei (AGN). This AGN pair is the closest one detected in the local universe using multiwavelength (visible and X-ray light) observations. While several dozen "dual" black holes have been found before, their separations are typically much greater than what was discovered in the gas-rich galaxy MCG-03-34-64.

Payload Operations Director at Marshall Carries on Family Legacy

Jacob Onken is following in his late father's footsteps at Marshall. Like his father, Jay Onken, Jacob Onken is a payload operations director at the center, leading flight controllers in the ISS Payload Operations and Integration Team who work 24/7 hours a day, 365 days a year, supporting scientific experiments aboard the orbiting laboratory. The pair are the first family members to both serve in this role at Marshall. "It's rewarding and heartwarming to know that the future of space flight operations is in good hands with the new generation," said Craig Cruzen, the POD Office training lead who oversaw Onken's instruction and certification.

Marshall Welcomes NASA Chief Scientist for Climate, Science Town Hall

NASA Chief Scientist and Senior Climate Advisor Kate Calvin joined team members at Marshall for a Climate Town Hall on Sept. 17 in Activities Building 4316. Calvin participated in a question-and-answer session during her visit that was live streamed agencywide. Topics discussed during the town hall included the response by NASA and Marshall to climate change, the effects of climate change on NASA and center objectives, and how NASA and Marshall are helping organizations around the world respond to climate change.

OCTOBER

IXPE Helps Researchers Determine Shape of Black Hole Corona

New findings using data from NASA's IXPE mission offer unprecedented insight into the shape and nature of a structure important to black holes called a corona. A corona is a shifting plasma region that is part of the flow of matter onto a black hole, about which scientists have only a theoretical understanding. The new results reveal the corona's shape for the first time and may aid scientists' understanding of the corona's role in feeding and sustaining black holes. IXPE, which is led by Marshall, measures X-ray polarization from a variety of sources, from black holes to exploded stars, deepening human understanding about the nature of these mysterious objects and the cosmos itself.

Europa Clipper Sails Toward Ocean Moon of Jupiter

NASA's Europa Clipper launched Oct. 14, embarking on its long voyage to Jupiter. The spacecraft will investigate Europa, a moon with an enormous subsurface ocean that may have conditions to support life. The largest spacecraft NASA ever built for a mission headed to another planet, Europa Clipper also is the first NASA mission dedicated to studying an ocean world beyond Earth. The spacecraft will travel 1.8 billion miles on a trajectory that will leverage the power of gravity assists, first to Mars in four months and then back to Earth for another gravity assist flyby in 2026. After it begins orbiting Jupiter in April 2030, the spacecraft will fly past Europa 49 times. The Planetary Missions Program Office at Marshall executes program management of the Europa Clipper mission.

Team Members View Progress Towards Future Artemis Flights

More than 500 Marshall team members had the opportunity to view progress toward future Artemis flights on bus tours offered by the SLS Program on Oct. 24. One stop enabled team members to view the Orion Stage Adapters for the Artemis II and Artemis III test flights inside Building 4708. The tours also included opportunities to see the Artemis III launch vehicle stage adapter, and the development test article for the SLS Block 1B universal stage adapter that will begin flying on Artemis IV. Additionally, programs and offices such as the Human Landing Systems Development Office and the Science and Technology Office hosted exhibits in the lobby of Building 4220.

NOVEMBER

NASA's Blue Meatball Flies High with Blue Angels at Pensacola Air Show

NASA joined Naval Air Station Pensacola to celebrate our nation's advances in aerospace at the Blue Angels Homecoming Air Show in Pensacola, Florida. Team members from Marshall, Kennedy, Stennis Space Center, and Goddard Space Flight Center came together to tell the agency's story and display exhibits during a special STEM event and the annual air show. This year's show commemorated the 55th anniversary of the lunar landing and looked to the future of space exploration. More than 200,000 students, teachers, aerospace enthusiasts, and members of the public attended the week's events. STEM Day attracted more than 5,500 students, with many learning more about NASA's work through demonstrations and exhibits.

Center Leadership Hosts Final All-Hands of 2024

Turning 65 is considered a milestone birthday and Marshall is poised to celebrate its 65th in 2025, reflecting on its legacy while also embracing the center's future missions in deep space exploration. Marshall Director Joseph Pelfrey touched on those topics and more during the center's Q4 All-Hands, the last such meeting scheduled for 2024. He offered a glimpse into plans to celebrate the center's birthday in 2025. "Marshall 65 is a yearlong transformative journey celebrating the remarkable legacy and the 65th anniversary of NASA's Marshall Space Flight Center," Pelfrey said. "Each month, we will explore a different theme, reflecting on our achievements and celebrating our people, partnerships, and missions."

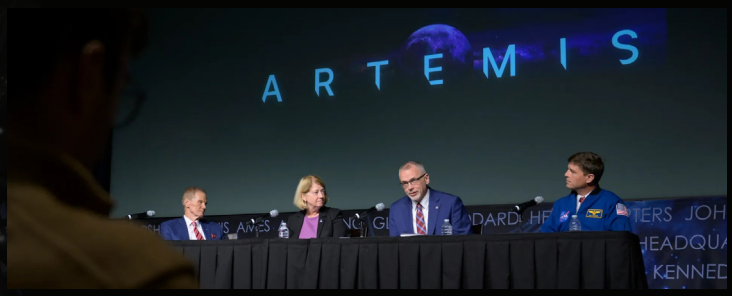
NASA Plans to Assign Missions for 2 Future Artemis Cargo Landers

NASA, along with its industry and international partners, is preparing for sustained exploration of the lunar surface with the Artemis campaign to advance science and discovery for the benefit of all. As part of that effort, NASA intends to award Blue Origin and SpaceX additional work under their existing contracts to develop landers that will deliver large pieces of equipment and infrastructure to the lunar surface. NASA expects to assign demonstration missions to current human landing system providers, SpaceX and Blue Origin, to mature designs of their large cargo landers following successful design certification reviews. Marshall manages the HLS Program.

DECEMBER

Artemis II Core Stage Goes Vertical

In December, NASA moved its SLS Moon rocket core stage to a vertical position in High Bay 2 inside the Vehicle Assembly Building at Kennedy. The core stage arrived at Kennedy in July, where it remained horizontal inside the facility's transfer aisle. With the move to High Bay 2, technicians with NASA and Boeing now have 360-degree access to the core stage both internally and externally. The Artemis II test flight will be NASA's first mission with crew under the Artemis campaign, sending NASA astronauts Victor Glover, Christina Koch, and Reid Wiseman, as well as CSA (Canadian Space Agency) astronaut Jeremy Hansen, on a 10-day journey around the Moon and back.



Agency Shares Orion Heat Shield Findings, Updates Artemis Moon Missions

On Dec. 5, NASA announced the latest updates to its lunar exploration plans through the Artemis campaign. Experts discussed results of NASA's investigation into its Orion spacecraft heat shield after it experienced an unexpected loss of charred material during re-entry of the Artemis I uncrewed test flight. For the Artemis II crewed test flight, engineers will continue to prepare Orion with the heat shield already attached to the capsule. The agency also announced it is now targeting April 2026 for Artemis II and mid-2027 for Artemis III. With Artemis, NASA will explore more of the Moon than ever before, learn how to live and work farther away from home, and prepare for future human exploration of the Red Planet.

NASA, USAID Launch SERVIR Central American Hub

SERVIR, NASA's flagship partnership with the U.S. Agency for International Development (USAID), launched a new regional center, or hub, in Central America on Dec. 3. The new hub is in partnership with the Tropical Agricultural Research and Higher Education Center in Turrialba, Costa Rica, and is supported by the USAID Central America and Mexico Regional Program. SERVIR's mission is to "connect space to village," increasing global access to NASA Earth data to support locally led environmental and development efforts. The SERVIR program, jointly led by NASA and USAID, is operated by the Earth Science Division's Applied Sciences Program in NASA's Science Mission Directorate. Marshall is home to the SERVIR Science Coordination Office.

National Aeronautics and Space Administration

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