



NASA MISSION SUPPORT

2023 ANNUAL REPORT

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WELCOME

A MESSAGE FROM

BOB GIBBS



Bob Gibbs

Associate Administrator,
Mission Support Directorate



*The work of the
Mission
Support
community is
foundational to
mission
success.”*

Dear friends of the Mission Support community,

Every launch, every discovery, and every innovation that NASA touches is the result of an incredible team effort. Underpinning NASA's accomplishments is the hard work done by NASA's Mission Support community. This dedicated workforce is charged with providing the enterprise services essential to the success of the agency. The following report is a celebration of this community's successes and its contributions to NASA's success for 2023.

Throughout the report you see many examples of how Mission Support makes NASA's success possible. This is especially evident as we look at NASA's people, places, and technology. These three foundational areas help enable every part of the agency. Whether we're recruiting future scientists, engineers, and public servants ([PAGE 32](#)), instituting new technology to share NASA with the world online ([PAGE 15](#)), or using innovative leasing agreements to provide value to the taxpayer and build partnerships with industry and academia ([PAGE 25](#)), NASA's Mission Support community is making sure NASA's missions and centers have the people, places, and technology they need.

In the past year, the Mission Support community supported more launches than ever before. It solved complex mission-critical problems, saved American taxpayers millions of dollars, and helped NASA pave the way for the future of air and space. It is a critical partner in every mission, every launch, and every discovery at NASA, and its story is the story of NASA. I hope you enjoy learning more through the stories of success in this report.

Sincerely,

Bob Gibbs

A MESSAGE FROM THE ADMINISTRATOR



Bill Nelson
NASA Administrator



... NASA is home to the world's finest workforce, and there is no limit to what we can achieve when we work together."

NASA Team,

In 2023, NASA continued to push the boundaries of what's possible and inspire the world through discovery.

Images from the James Webb Space Telescope have continued to unfold the secrets of the universe. NASA is providing easy to use and critical climate data to all people. We've dared to soar in the skies farther, faster, and higher, while making aviation more dependable and sustainable. We continued to safely transport astronauts to the International Space Station to conduct groundbreaking science and test new technology. And our work continues on the Artemis II mission that will send astronauts to the Moon for the first time in over half a century.

When I think about some of the things we've accomplished together, I'm grateful for the thousands of people that contribute to that success. For every inspiring moment NASA shares with the world, our Mission Support community plays a critical role in making it possible.

Mission Support provides the services and support that are essential to every launch, every discovery, and every spark of innovation at NASA.

Beyond our missions that inspire the world, mission support protects the health and safety of NASA employees and the public, oversees facilities and data, secures vital contracts and acquisitions, on top of ensuring NASA remains the finest place to work in the federal government. And it's why NASA continues to be a global leader in responsible and sustainable space exploration.

At every NASA center, the Mission Support community is making the impossible, possible, boosting American innovation, and investing in our local, state, and national economies.

While this annual report only scratches the surface of the Mission Support community's work and accomplishments in 2023, it's proof that NASA does big things – things that inspire us and unite us. I can't wait to see what we will achieve together in the future.

Onward and Upward,

Bill Nelson

PEOPLE *FIRST*, MISSION ALWAYS.

What is Mission Support?

People first, mission always. It's the mindset of NASA's Mission Support community. And it's more than a mindset—it's a commitment that keeps NASA as the best place to work in the federal government and the world leader in exploration and discovery.

The organizations that make up the Mission Support community serve NASA missions in countless ways across the agency. It may be a planner who anticipates a risk before it becomes an issue, a procurement team that makes sure a mission has what it needs without delay, or a technical guru who resolves a flight safety issue. Whether the mission is managed by Aeronautics Research, Exploration Systems Development, Science, Space Operations, or Space Technology, success depends on wide-ranging Mission Support contributions.

Mission support is so tightly interwoven with mission that it would be hard to separate the two. Missions don't happen without mission support. NASA is a recognized leader in mission support services in the federal government. The value of mission support is quickly evidenced by the agency's stellar workforce, international cooperation in space, aeronautics innovation, astronaut safety, and so much more.

Because the Mission Support community touches everything done at NASA, it helps shape the culture of the agency—nurturing a spirit of unity in the shared purpose of discovery to make an enduring impact on humanity.

Who is the Mission Support Community?

For every organization, there are essential business and institutional functions that serve as the foundation for that organization's work. At NASA, those indispensable services are provided by the Mission Support community, composed of the Mission Support Directorate (MSD) Front Office; 13 Mission Support Enterprise Organizations (MSEOs), which include five that report to MSD and eight partners; three Technical Authorities (TAs); and business and technical professionals at 10 NASA centers.

At the center of NASA's Mission Support community is MSD. MSD's role is to fuel the organizations charged with providing the essential services for NASA's missions and centers to accomplish their work. MSD does this by coordinating and integrating mission support efforts, sparking innovation and transformation, and solving problems standing in the way of NASA's success.

The associate administrator for MSD is responsible for the Mission Support community's budgets. This includes the services, capabilities, and oversight that ensure NASA has the technical skills, physical assets, financial resources, infrastructure, and top talent to be successful, safe, and reliable.



MISSION SUPPORT COMMUNITY

Mission Support Directorate (MSD) Front Office

The MSD Front Office includes five offices that focus on enterprise-enabling capabilities that help guide, align, and integrate the mission support enterprise.

- **Mission Support Headquarters and Operations Office (MSHOO)** provides leadership, management, and integration for effective NASA Headquarters operations and support services, including employee engagement, well-being, and morale through the NASA Exchanges.
- **Mission Support Integration Office (MSIO)** leads the ongoing improvement of mission support services by providing guidance, frameworks, and tools that help the Mission Support community improve its work and move toward a more integrated institutional service model.
- **Mission Support Resources Management Office (MSRMO)** leads the effective and strategic distribution of resources based on organizational performance and mission requirements through formulation and execution of NASA's mission support budgets. Within MSRMO is the [Partnerships Office](#), which provides agency-level strategic policy and guidance for domestic and unclassified partnership matters.
- **Program Management and Support Office (PMSO)** supports effective leadership and management of NASA's workforce, infrastructure, facilities, contracts, budget, and strategic relationships by providing essential services to the MSD associate administrator and Front Office.
- **Aircraft Capability Management Office (ACMO)** provides leadership for NASA's aircraft capability portfolio, which includes the workforce, competencies, equipment, facilities, infrastructure, property, and enabling technologies that support the functionality and effectiveness of NASA's aircraft capabilities.

Direct Report Offices

Within MSD there are also five direct-report offices that deliver the essential enterprise services to support all NASA business.

- **[Office of the Chief Human Capital Officer \(OCHCO\)](#)** grows, engages, and develops a highly dedicated and diverse workforce with a focus on equity and inclusion.
- **[Office of Procurement \(OP\)](#)** enables acquisition business solutions to optimize capabilities and operations.
- **Office of Protective Services (OPS)** safeguards NASA's employees, contractors, missions, and facilities.
- **[Office of Strategic Infrastructure \(OSI\)](#)** manages assets and capabilities, deploys sustainable practices, and reduces current and future infrastructure-related risks.
- **[NASA Shared Services Center \(NSSC\)](#)** provides more than 60 business activities to all NASA centers, mission directorates, and MSEOS.

THE MISSION SUPPORT COMMUNITY

Enterprise Partner Offices

Enterprise partner offices collaborate with MSD and support NASA by providing the professional expertise and services needed for the NASA enterprise.

- **Office of the Chief Financial Officer (OCFO)** supplies leadership for the planning, analysis, justification, control, and reporting of all agency fiscal resources.
- **Office of the Chief Information Officer (OCIO)** enables the secure use of data and technology to accomplish NASA's mission.
- **Office of Communications (OCOMM)** ensures that the public goes with NASA to explore the unknown in air and space, innovate for the benefit of humanity, and inspire the world through discovery – through a variety of digital, in-person, and media-facilitated methods.
- **Office of Diversity and Equal Opportunity (ODEO)** leads diversity and civil rights policies, programs, and services.
- **Office of the General Counsel (OGC)** supplies commercial, contract, general, and international law support.
- **Office of International and Interagency Relations (OIIR)** provides leadership for all NASA international and interagency activities and partnerships, and policy interactions with U.S. Executive Branch offices and agencies.
- **Office of Legislative and Intergovernmental Affairs (OLIA)** provides leadership in interactions between NASA and the U.S. Congress as well as state and local governments.
- **Office of Small Business Programs (OSBP)** promotes and integrates small businesses into the industrial base of contractors and subcontractors that support the future of space exploration, scientific discovery, and aeronautics research.

Technical Authorities (TAs)

NASA's TAs bring vital, mission-enabling technical expertise to all of NASA.

- **Office of the Chief Engineer (OCE)** advises the NASA administrator and other senior officials on matters pertaining to the technical readiness and execution of NASA programs and projects.
- **Office of the Chief Health and Medical Officer (OCHMO)** provides policy and oversight of all health and medical activities at NASA.
- **Office of Safety and Mission Assurance (OSMA)** assures the safety and enhances the success of all NASA activities through agencywide safety, reliability, assurance, and space environment sustainability.

THE MISSION SUPPORT COMMUNITY

Centers

The leadership and support teams at NASA centers and their component facilities play a crucial role in the execution of missions. Center leaders and support teams work with MSD to align center needs with Mission Support priorities. Centers ensure their laboratories, critical capabilities, and associated specialized equipment are mission-ready and meet NASA standards. Each center provides analytical support and conducts research and development projects to guarantee NASA has the technical capabilities and capacity for all missions.



1 [Ames Research Center](#), Moffett Field, CA

2 [Armstrong Flight Research Center](#), Edwards, CA

3 [Glenn Research Center](#), Cleveland, OH

4 [Goddard Space Flight Center](#), Greenbelt, MD

5 [Johnson Space Center](#), Houston, TX

6 [Kennedy Space Center](#), Cape Canaveral, FL

7 [Langley Research Center](#), Hampton, VA

8 [Marshall Space Flight Center](#), Huntsville, AL

9 [Mary W. Jackson NASA Headquarters](#), Washington, DC

10 [Stennis Space Center](#), Bay St. Louis, MS

Mission Support Priorities



PEOPLE



PLACES



TECHNOLOGY

Mission support at NASA has a broad portfolio of responsibilities, and all work done by the community helps ensure NASA reaches its goals. But as with all organizations, some priorities rise to the top as deserving focused attention. In 2023, the Mission Support community prioritized the foundational areas of people, places, and technology. These three key functions represent the pole star around which NASA's success turns. Without a skilled, diverse, and innovative workforce NASA would not be what it is. The agency's technology, from the systems we use to the cybersecurity that underpins them, enables NASA and its partners to better understand Earth and reach beyond the stars. And NASA is home to truly unique facilities—launch pads, wind tunnels, rocket assembly plants, and more—that change the world. Together these three areas make NASA what it is, and because of that the Mission Support community laid special emphasis on them.

For 2024, the maturation of the Mission Support community will continue, with a special focus on the commonality of practices, processes, and procedures across functions. This goes hand-in-hand with an emphasis on making it easier to do business with and within NASA. Standardizing where it makes sense promotes efficiencies and helps everyone move forward together faster, providing more value to taxpayers. By prioritizing processes, practices, and procedures, the Mission Support community is working to reduce duplication of effort, save money, find better ways of working, and innovate how the community fulfills its responsibilities.



DIS·COV·ER

TO EXPAND HUMAN KNOWLEDGE
THROUGH NEW SCIENTIFIC DISCOVERIES

DISCOVER

NASA inspires the world through discovery. The agency's strategic goal No. 1—discover—is to expand human knowledge through new scientific discoveries. Objectives include understanding the Earth system and its climate; understanding the Sun, solar system, and universe; and ensuring NASA's science data are accessible to all and produce practical benefits to society. From building customized clean rooms for investigating the first sample returned from an asteroid to reducing the risk of orbital debris that could menace the James Webb Space Telescope and other spacecraft, the Mission Support community provided essential expertise and services in 2023 to propel NASA's quest to discover. Here are a few highlights.

First Asteroid to Return to Earth

NASA's [OSIRIS-REx](#) (Origins, Spectral Interpretation, Resource Identification, and Security-Regolith Explorer) spacecraft capped its seven-year journey in September 2023 with the successful deposit of a pristine sample of surface material from the asteroid Bennu in the Utah desert. OSIRIS-REx is the first U.S. asteroid sample return mission and nearly 190,000 people were able to watch the live coverage of the sample return and reveal due to OCOMM's live broadcast coverage. Since then, almost 2 million people have viewed the coverage. The OSI Logistics Management Division (LMD) provided transportation of the sample from its landing site to NASA's Johnson Space Center in Houston. LMD facilitated coordination with U.S. Transportation Command to use a C-17 military charter to transport the sample on a 1,600-mile trip to Johnson and coordinated ground transportation and assistance with handling and offloading requirements with Johnson's logistics team. Curation experts working in new clean rooms built by Mission Support personnel especially for the OSIRIS-REx mission carefully disassembled sample return hardware to get a glimpse at the bulk sample within. Initial studies of the asteroid sample show evidence of high-carbon content and water, which scientists say could indicate the building blocks of life on Earth may be found in the rock.



Sharing Material from Asteroid Bennu

The Mission Support community took action to ensure science data collected through the OSIRIS-REx mission are accessible to all and produce practical benefits to society. OGC, together with Johnson's Business Development and Technology Integration Office, the Astromaterials Acquisition and Curation Office, and OIIR, enabled the execution of more than 60 international and domestic loan agreements for material from asteroid Bennu.



James Webb Space Telescope Weathering the Space Environment

The James Webb Space Telescope was engineered to withstand bombardment from micrometeoroid strikes, an unavoidable aspect of operating any spacecraft. The telescope's primary mirror averages one to two micrometeoroid hits per month, matching what the engineering team anticipated when developing the observatory. One of the optical errors analyzed early on was higher than expected so NASA turned to the Mission Support community and other technical experts to form a working group to ensure all parts of the observatory continue performing at their best. OSMA's Meteoroid Environment Office supported the observatory by working with program engineers to establish a "[Meteoroid Avoidance Zone](#)" for observations that will minimize the number of impacts on the primary mirror and provided custom meteor shower forecasts that enable observations to be rescheduled during times of high meteor activity. This was used during the 2023 Geminid meteor shower in mid-December when at least one observation was rescheduled to minimize risk to the Webb telescope.

These refined forecasts enable Webb to take protective action against sporadic showers and extend the telescope's lifetime, preserving its ability to explore the secrets of the universe and provide space imagery that garnered the highest engagement rate on NASA social media.



Reducing the Risk of Orbital Debris

James Webb isn't the only NASA mission concerned about hazards of the space environment. The No. 1 risk for NASA's human spaceflight programs is micrometeoroids and orbital debris. Approximately 20,000 orbital debris objects are large enough to be tracked and avoided by maneuvering a spacecraft. But it's the unseen orbital debris—large enough to cause damage but too small to track—that poses the biggest risk to spacecraft.

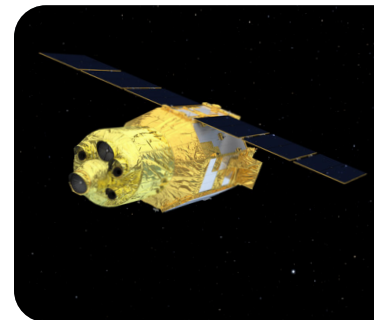
OSMA organized and hosted the Second International Orbital Debris Conference to promote orbital debris research in the U.S., foster collaboration with the international community, and encourage adoption of orbital debris mitigation best practices to support space sustainability. More than 150 technical papers were presented during the conference, which attracted several hundred participants from the U.S. and international community.



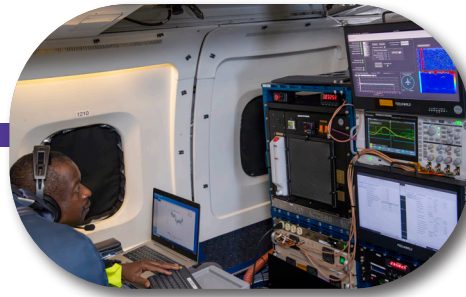
OSMA, in partnership with NASA's Science Mission Directorate, the International Space Station Program, and the Japan Aerospace Exploration Agency (JAXA), identified a technology demonstration opportunity to deploy an innovative orbital debris in-situ measurement sensor on the HTV-X3 uncrewed expendable cargo spacecraft in early 2026. Sensor development and mission preparation are underway. A successful demonstration will pave the way to characterize risk from small orbital debris for the safe operations of future missions in low-Earth orbit. The OSMA Orbital Debris Program Office leads the instrument development and preparation of the mission. OIIR and OGC supported the establishment of an agreement between the Orbital Debris Program Office and JAXA on instrument development for the mission.

Rainbow of X-Rays

The X-ray Imaging and Spectroscopy Mission ([XRISM](#), pronounced "crism") is a powerful satellite that will revolutionize understanding of the hot, X-ray universe. A collaborative mission led by JAXA, XRISM aims to pry apart high-energy light into the equivalent of an X-ray rainbow and investigate cosmic questions about the universe. The successful development and launch of this mission would not have been possible without significant coordination and collaboration enabled by OLIA, OIIR, OGC, OPS, and OCFO. These Mission Support partners provided expertise and guidance to ensure that international and agency policies, regulations, and laws were followed, employees were briefed on all foreign travel safety and security measures, and travel needs were supported—enabling NASA scientists and engineers to work side-by-side with JAXA and European Space Agency (ESA) partners in Japan.



Flying Science Laboratories



The talented people from the Mission Support community and Armstrong Flight Research Center, Langley Research Center, and Johnson Space Center were the force behind amazing science data collection through [Airborne Science Program](#) missions. The program's field campaigns in 2023 led to new discoveries in lightning research, investigated the impact of Canadian wildfires on air quality, and much more.

The Airborne Science Program is responsible for providing aircraft systems such as NASA's [four-engine DC-8 jet](#)—one of the world's largest flying laboratories—that further science and advance the use of satellite data. The Mission Support community is vital to these important endeavors. Prior to any national or international deployment, advance materials and equipment are staged, processed, and shipped by logistical services and warehouse personnel. Travel and passports are coordinated. Medical clearances for flight crews are processed. Export control and other sensitive information is reviewed, and protocol is established to enable project success. Mission Support personnel also coordinate security, property protection, media opportunities, and web articles.

NASA's newest science aircraft, a Boeing 777, was acquired to replace and extend the capabilities of the NASA DC-8, which is retiring in 2024. The NASA B777-200ER is a unique flying laboratory that will have global reach and enable data collection for NASA projects, including sensor development, satellite sensor calibration, data product validation, and field studies to better understand Earth system processes and improve models and decision-making. To best support future science missions, the Aircraft Management Advisory Board decided, with concurrence from the Mission Support Council, that the new science aircraft will be based near principal investigators and science researchers and operated from an East Coast center.

Collective Commitment to Study Climate

Government officials and science experts gathered for Climate Interagency Hill Day to explore the latest scientific advancements and innovative solutions for studying climate. OLIA collaborated with a variety of federal agencies, including the Department of Energy, Environmental Protection Agency, National Institute of Standards and Technology, and National Oceanic and Atmospheric Administration, to feature subject matter experts and visual aids highlighting the collective commitment to better understanding Earth's climate and environmental health. Over 100 congressional staff participated in the interagency event to learn more about NASA's climate programs and projects.



Bill Nelson
@SenBillNelson

A successful Interagency Climate Day on Capitol Hill last week, with experts and visual aids from @NASA, @NOAA, @EPA, @CommerceGov, @USDA, @USInterior, @uscensusbureau, @USGS & more. Thanks to @SenBrianSchatz for sponsoring the event and supporting climate outreach opportunities!





EXPLORE OUR CHANGING PLANET

Earth Information Center

The [Earth Information Center](#) opened in 2023 at NASA Headquarters and is available to the public. This new immersive experience combines live data sets with cutting-edge data visualization and storytelling to allow visitors to see how the planet is changing. The center is part physical space and part virtual experience, which shows how NASA data can improve lives in the face of disasters, environmental challenges, and our changing world.

Organizations throughout the Mission Support community coordinated to support the planning and successful launch of the exhibit in 2023, including MSHOO and its Support Services Division, OCHMO, OCOMM, OPS, and OCIO. OCOMM partnered with NASA's Science Mission Directorate to develop the center and led the storytelling and design of all elements to create a successful visitor experience to help raise awareness of NASA's Earth science. OCOMM led the effort to communicate that the Earth Information Center benefits humanity in making informed decisions relating to Earth's environment and climate by providing easily accessible, readily usable, and scalable Earth information—enabling global understanding as only NASA can offer. OPS worked from inception through build-out to ensure the safety and security of personnel and equipment.

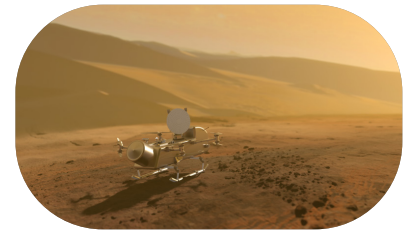


Environmental Regulation and Preservation

OSI's Environmental Management Division (EMD) continued meeting and consultation with Santa Susana Field Laboratory (SSFL) Sacred Sites Council (SSC) Tribal leaders and representatives as part of NASA's 2014 SSFL Programmatic Agreement, and in support of Executive Order 13175 and the 2021 Presidential Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships. In August 2023, NASA facilitated an SSC meeting that was the first one attended by senior California regulatory agencies' leadership. Their attendance was in response to a direct request from Tribal leaders and provided Tribal elders an opportunity to speak directly to and make impactful impressions on state leadership. The meeting helped all agencies better understand the concerns of the Native American community connected to SSFL regarding preserving and protecting their cultural resources onsite as well as the impact of an Administrative Order on Consent (AOC) cleanup on cultural resources and traditional landscape at SSFL and reinforced the value of NASA's work with Tribal representatives whose concerns regarding the damage of an AOC-level cleanup to their sacred space is aligned with NASA's position. This meeting, along with continued MSD/EMD leadership and proactive dialogue with the SSC and the California Department of Toxic Substances Control, may result in a more reasonable, protective cleanup at SSFL, potentially reducing cleanup duration by years and cleanup costs by millions of dollars.

A Daring Endeavor

OSMA issued a new handbook with guidance that is instrumental in the continued development of NASA's [Dragonfly](#) mission and future nuclear-enabled missions for science and human exploration. The Dragonfly mission features a revolutionary, car-sized nuclear-powered drone to fly over and land on the organic-rich sands of Saturn's giant moon, Titan. The OSMA handbook, "[Information and Best Practices Related to NASA Nuclear Flight Safety for Space Flights Involving Space Nuclear Systems](#)," facilitates a repeatable, robust process that promotes clear, effective interfaces between activities and stakeholders focused on meeting nuclear flight safety requirements for missions using space nuclear systems. This kind of resource helps ensure NASA's innovative missions remain safe and effective.



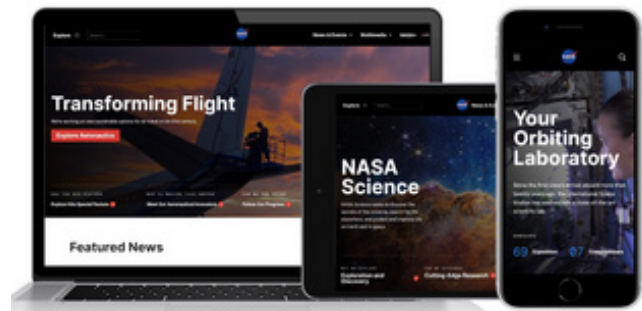
Laser Focus on Safety

The OCHMO-chaired Laser Safety Review Board reviewed over 30 outdoor laser projects and missions that originated, partnered, or collaborated with NASA. This work is instrumental in maintaining the safety of the NASA workplace, NASA employees, and members of the public from dangers posed by outdoor laser projects. By developing strategies to protect against potential, serious health effects of unmitigated laser exposure, OCHMO is paving the way for NASA to safely use lasers for missions involving aircraft, spacecraft, and enhanced communications. The projects reviewed in 2023 included the Tropospheric Ozone Lidar System Outdoor Laser and Stratospheric Ozone (TROPOZ) Outdoor Laser operations, High Energy Laser with Integrated Optical-dazzler and Surveillance (HELIOS) Integrated Development Test, and Europa Lander Intelligent Landing System.

Modernizing NASA's Digital Presence

OCIO and OCOMM worked hand-in-hand with NASA's Science Mission Directorate to advance communications through the agency's web modernization project. The project included redesign and redevelopment of NASA's unified public web experience—[nasa.gov](#), [science.nasa.gov](#), web [pages](#) featuring Spanish language content, and [NASA+](#), the new streaming service that transitions the agency from traditional, linear 24/7 NASA TV "channels" to a robust, on-demand streaming service. The activity is part of NASA's efforts to comply with website and digital service modernization provisions in the 21st Century Integrated Digital Experience Act.

With the new web experience launched in September 2023, the [nasa.gov](#) and [science.nasa.gov](#) websites share the same user interface and site search. This provides a consistent experience to visitors while still ensuring all agency content, particularly the agency's critical science content, is authoritative and up to date. The new [nasa.gov](#) and [science.nasa.gov](#) are visually stunning, on par with industry standards, and feature upgrades that improve user experience. The project also included an upgrade of the NASA app, which has been downloaded over 30 million times.





EX·PLORE

EXTEND HUMAN PRESENCE TO THE MOON AND
ON TOWARD MARS FOR SUSTAINABLE LONG-TERM
EXPLORATION, DEVELOPMENT, AND UTILIZATION

EXPLORE

NASA explores the secrets of the universe for the benefit of all. The agency's strategic goal No. 2—explore—is to extend human presence to the Moon and on toward Mars for sustainable long-term exploration, development, and utilization. The Mission Support community actively contributes to meeting NASA's objectives to explore the surface of the Moon and deep space; develop a human spaceflight economy enabled by a commercial market; develop capabilities and perform research to safeguard explorers; and enhance space access and services.

In 2023 Mission Support efforts included legal, procurement, international relations, and safety activities that enhanced the Artemis Accords, fostered a new paradigm for commercial space operations, equipped the modernization of a legacy test stand, and ensured safety and data sharing around the historic return of an asteroid sample. Here are a few of the success stories.

Artemis Progress

NASA continued preparations in 2023 to send the first Artemis astronauts to the Moon. The Mission Support community provided a wide variety of vital assistance that spanned the globe. While NASA is leading Artemis, international partnerships are a key part of advancing Moon to Mars exploration. OIIR and OGC worked with the U.S. Department of State to promote the [Artemis Accords](#) and secure new signatories, including geopolitically important signatories such as Germany, India, and Argentina. In 2023, nine additional countries signed the Artemis Accords, which lay out a common set of principles governing the civil exploration and use of outer space. These outcomes were the result of several dozen Artemis Accords briefings provided by OIIR and the U.S. Department of State. So far, more than 30 countries have signed the accords. OGC also supported negotiations with ESA for European Service Modules 6 through 9, which are critical to the Artemis program and include the first module with a new main engine.

OCOMM's live broadcast allowed the agency to directly reach over 8 million people, demonstrating through coverage of the successful launch that NASA explores for the benefit of all humanity. Nearly one million people watched the successful launch of Artemis I across NASA flagship channels. This was the first time a launch was streamed in high definition (HD) on YouTube, and had over 720,000 concurrent live viewers and 8 million total views.

After the successful Artemis I mission in late 2022, Mission Support had more work to do. For example, the OSMA Nondestructive Evaluation program had worked with other NASA and industry partners to deploy the 3D Backscatter X-ray system on the flown Orion heatshield, which was subjected to temperatures of nearly 5,000 degrees Fahrenheit during reentry. The data collected was processed with automated analysis techniques to determine the remaining amount of uncharred ablative material, called Avcoat, that existed in the scans. The volumetric analysis of the Avcoat thermal protection system's condition following the Orion capsule's reentry into Earth's atmosphere provides confidence in the thermal protection system for Artemis II.



BULGARIA



INDIA



GERMANY



NETHERLANDS

SO FAR,
MORE THAN
30
COUNTRIES
HAVE
SIGNED
THE
ACCORDS

Artemis Progress (continued)

Another way the Mission Support community contributed to Orion Landing and Recovery Operations was on-time processing of post-flight hardware. OSI's LMD reviewed and expedited approval of 93 government property transfer documents, which included 261 line items valued at \$1,005,869,372—all within two business days. This effort ensured critical hardware was transferred in accordance with federal transportation and accounting regulations and that items were not mislabeled, lost, or mishandled. In May 2023 NASA announced the selection of Blue Origin to develop its Blue Moon lander for the Artemis V mission. Marshall Space Flight Center's OP led the contract effort and OGC provided critical legal support for the award of the \$3.4 billion Next Space Technologies for Exploration Partnerships-2 (NextSTEP-2) Sustaining Lunar Development (SLD) contract. The SLD contract for the development of a second human landing system, which will deliver astronauts to the lunar surface in support of the Artemis program, was awarded ahead of schedule and without protest. Under the Appendix P contract award, Blue Origin will develop its human landing system to meet NASA's requirements for sustainable lunar exploration. In addition to design and development work, the contract includes one uncrewed demonstration mission to the lunar surface before a crewed demo on the Artemis V mission in 2029.

The 10 booster motor segments for the Space Launch System (SLS) rocket that will help propel the Artemis II astronauts on a trip around the Moon arrived at Kennedy Space Center in Florida in September. They will form the SLS rocket's twin, five-segment solid rocket boosters, which produce more than 75% of the total thrust at liftoff. Due to their weight, the 10 booster motor segments traveled by rail from the manufacturer in Utah across eight states in specialized transporters to the spaceport. Safety and Mission Assurance at Marshall Space Flight Center assisted in the hardware acceptance review for manufacture and delivery of the Artemis II booster flight segments and shipment as a participant in the Booster Element Team.

At Ames Research Center, Mission Assurance also supported progress towards Artemis II, with the Human Computer Interaction group advancing multi-mission "operational views" that let mission operators more easily navigate and transition between mission contexts during Artemis II simulations and real-time operations. The group also established a digital environment for the Moon to Mars Systems Engineering and Integration team to establish structured data capture of the new Moon to Mars requirements.

NASA is planning to shift procurement of SLS launches to a services contract for missions starting with Artemis V. Under the Exploration Production and Operations Contract (EPOC), NASA would procure launch services, rather than the vehicles themselves. The Office of Procurement at Marshall has been instrumental in working with the Exploration Systems Development Mission Directorate, HQ OP, OGC, and the SLS program team to develop the procurement strategy. EPOC will reduce the number of SLS contracts, move accountability to industry, and provide cost certainty for NASA in the years to come.



COMMERCIAL

New Paradigm and Priority for Commercial Space Operations

A robust human spaceflight economy ensures national interests for research and development in space are fulfilled while allowing NASA to focus government resources on the challenges of deep space exploration through Artemis. The Mission Support community helps pave the way for vibrant [commercial space operations](#).

In 2023 OGC fostered a new paradigm of commercial space operations through agreements to develop new low Earth orbit platforms. This involved analyzing new insurance approaches to make commercial space businesses viable, advocating for new authority to license commercial on-orbit activities, and streamlining interagency coordination to enable a robust commercial space economy in low-Earth orbit.

OIR, in collaboration with offices across NASA such as OLIA, OTPS, OGC, mission directorates, and other Mission Support offices, also implemented a National Space Council priority to create legislation, formalize interagency coordination, and obtain public feedback for licensing on-orbit commercial activities by collaborating with the Federal Aviation Administration, Federal Communications Commission, National Oceanic and Atmospheric Administration, Department of State, and Department of Defense. This ongoing effort will meet international obligations, provide a framework for industry, and facilitate future science, lunar, and low-Earth orbit commercialization projects.



Protecting Astronauts and Their Families

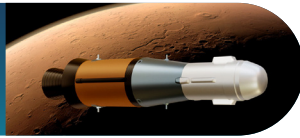
As part of NASA's Commercial Crew Program, [SpaceX Crew-6](#)—the seventh SpaceX Dragon spacecraft flight with people—launched in March 2023 and landed in September 2023. The Mission Support community ensured security of the Crew-6 astronauts and their immediate families from the time they arrived at Kennedy Space Center through successful launch. OPS coordinated with the Department of Defense for air support under [Noble Eagle](#) and coordinated with U.S. Coast Guard Sector Jacksonville for enforcement of safety and security zones in the Atlantic Ocean.

Be Our Guest

A total of 536,000 people around the world registered in 2023 for [NASA's Virtual Guest Program](#), an OCOMM-managed activity that allows the public to virtually participate in launches and milestone events. Registrants represent all 50 U.S. states and 173 countries. More than 340,000 individuals registered for the Artemis I virtual guest experience to communicate that NASA explores for the benefit of humanity to the broadest practicable audiences.



MARS



Returning Samples from Mars

The OP at Marshall Space Flight Center manages the Space Technology Mission Directorate (STMD) Mars Ascent Vehicle Integrated System (MAVIS) contract to build the Mars Ascent Vehicle (MAV), a small, lightweight rocket to launch rock, sediment, and atmospheric samples from the surface of the Red Planet. MAV would be the first launch of a rocket from the surface of another planet, and MAVIS would be the first robotic round-trip mission to retrieve a sample from another planet. The sample container would be captured by the Earth Return Orbiter, led by ESA, when it reaches Mars orbit. Subsequently, the spacecraft would bring the samples to Earth safely and securely in the 2030s as part of the [Mars Sample Return](#) international partnership. Marshall's OP is working with OSI, NASA HQ OP, OGC, and STMD to facilitate a clean room at the contractor's facility. The intended use of the clean room is to assemble and test the MAV prior to launch. Lockheed Martin is responsible for providing an ISO-8 planetary protection cleanroom facility for MAV assembly and testing, and capable of handling live solid rocket motors. In ISO-8, an air exchange with conditioned, filtered air takes place up to 40 times per hour.

Planetary Protection

The Office of Planetary Protection in OSMA continued to provide technical guidance and oversight in the development and evaluation of innovative approaches to enable the Mars Sample Return campaign to ensure back planetary protection success and public safety for Mars Sample Return. Back planetary protection deals with the possibility that Mars material may pose a biological threat to Earth's biosphere and leads to a constraint that the returned samples must be contained with extraordinary robustness until they can be tested and proven harmless or acceptably sterilized. The office reviewed initial versions of the sample return safety assurance case in 2023 and sponsored the assessment of an alternative sterilization method to reduce potential for biological contamination by Martian particles.

*Actions to Uphold a Timeless NASA Core Value: **SAFETY***

Arc Flash

The Mission Support community is one of many forces behind safety at NASA. In 2023, the community emphasized this priority through NASA's safety culture and by decreasing the community's No. 1 risk of arc flash events. OSI and OSMA collaborate closely to reduce this risk. The offices performed ongoing activities to help eliminate the critical safety risks due to aged and non-compliant electrical infrastructure. This included arc-flash analysis projects at three centers spanning four sites. The analysis enables identification and labeling of proper worker personnel protective equipment. Soon, arc flash may no longer be the Mission Support community's top risk because a large portion of the work required to reduce the risk is complete.

Launch Safety

The Mission Support community played a vital role in more U.S. launches than ever in 2023. OPS partnered with SpaceX, Northrop Grumman, Rocket Lab, and the Commercial Crew Program for pad rescue training and launch day services in support of International Space Station missions and satellite launches, ensuring safety during pre-launch anomalies.





Improving Spacecraft Safety and Reliability

The NASA Engineering and Safety Center ([NESC](#)) within OCE invested significant time and resources to understand the complex behavior of composite overwrapped pressure vessels (COPV), such as helium, nitrogen, hydrogen, or oxygen tanks. COPVs are inherently high-risk spaceflight components that are used extensively in spacecraft and launch vehicles for storage of propulsion commodities and elements required for life support. Most recently, an NESC team found there was a lack of conservatism in the damage tolerance analyses conducted on COPV liners using industry standard methods, which include both modeling and testing. In some cases, crack growth behavior that results from COPV manufacturing processes was not accounted for in modeling and lifetime predictions. The NESC work resulted in corrections to models

and a recommendation to update industry standards. NESC continues to thoroughly analyze the risk because the consequences of COPV failure could be catastrophic to crew or spacecraft on missions ranging from the International Space Station and Commercial Crew to Artemis.

Devoted to Human Spaceflight Safety

In 2023 the NESC had about 160 open activities at any given time and accepted over 80 new requests for technical assistance throughout the year. Over half of the NESC's active work portfolio in Fiscal Year (FY) 2023 directly supported human spaceflight, while the balance supported science missions, space technology, or issues that impact multiple NASA mission directorates. Approximately one quarter of the portfolio was devoted to safely transporting crew to and from the International Space Station as well as sustaining the space station, while another one quarter directly supported the Artemis exploration missions. Almost two-thirds of the 80 new NESC activities completed in FY 2023 directly supported human spaceflight missions.



Columbia Anniversary

In honor of space shuttle [Columbia's 20-year anniversary](#), OSMA organized full-day workshops to focus on lessons learned and their applicability to programs and projects at NASA centers today. Working with OSMA, OCE's APPEL Knowledge Services ensured the longevity of lessons learned during the 20th anniversary of the Columbia accident. The offices developed messages and provided key references on managing schedule pressure, margins, and unsafe environments. They also designed a workshop and adapted remarks from the 2023 NASA Day of Remembrance Town Hall for a special podcast episode.



New Failure Analysis Capabilities

The [Material Analysis Lab](#) at Kennedy Space Center houses a computed tomography system as a means of providing nearly unmatched non-destructive evaluation to troubleshoot problems in spaceflight hardware. Mission Support at Kennedy invested in additional hardware that offers increased resolution, inspection size, and use, significantly improving the lab's effectiveness and range while also providing a new capability of parallel inspections. For example, the system prevented an Artemis delay by helping diagnose the cause of a 13,000-volt arc flash at the Vehicle Assembly Building and averted a SpaceX scrub with real-time analysis of a launch constraint at T-minus 18 hours. The system continued to reduce the risk of downtime for missions in 2023.

Spaceflight Forensics

OCHMO held an inaugural Spaceflight Forensics Summit in April 2023 with industry experts with the intent to establish a community of practice to develop approaches to human spaceflight mortality response. Novel frameworks to on orbit spaceflight mishap fatalities are required as NASA prepares to undertake more long duration and commercial missions. Through these discussions and the fruit they bear, OCHMO and NASA are helping to address the challenges that come with a new generation of space exploration, not just for the agency but for the whole space industry.

Verifying Software for High-Profile Missions

The [Independent Verification and Validation \(IV&V\) Program](#), which operates under functional guidance from OSMA, completed all planned software validation and verification activities for 13 of NASA's highest profile science and human-rated missions, resulting in the identification of over 1,600 high-severity software defects, which have either already been remediated or are in the process of being remediated by the software development teams. Through its services IV&V assures the robustness of a mission's software and the capability of the software to properly respond to the selected abort conditions.

International Cooperation for Space Missions

International Partnerships for Moon to Mars Exploration

The Mission Support community has a key role in stimulating international cooperation in space exploration. In its support to NASA's Exploration Systems Development Mission Directorate, OIR developed agreements and supported technical discussions on potential cooperative activities with international partners that are envisioned to yield major contributions to NASA's Moon to Mars exploration efforts. Study efforts underway with ESA and the Canadian Space Agency led to commitments of billions of dollars in new resources for future partnership with NASA. Discussions with JAXA have passed key internal acquisition decisions to proceed with formal negotiations for a major partnership on the Moon, potentially offsetting billions of dollars in NASA spending.

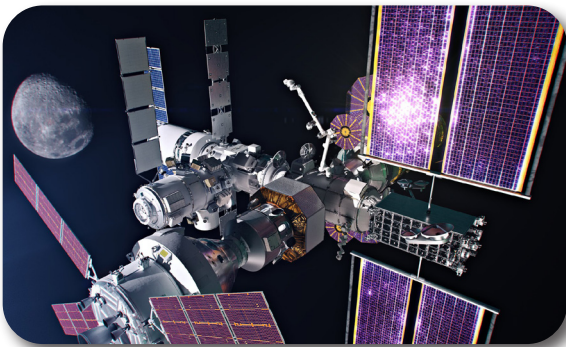
Peaceful International Cooperation in Space

Working with OIR and the State Department, OGC concluded a [Framework Agreement](#) with Japan—over 10 years in the making—that enables more rapid collaboration between both countries’ civil space programs. The Framework Agreement Between the Government of the United States of America and the Government of Japan for Cooperation in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, for Peaceful Purposes was signed in January 2023. The agreement covers joint activities, including space science, Earth science, space operations and exploration, aeronautical science and technology, space technology, space transportation, and safety and mission assurance.



Licenses and Authorizations for High-Visibility Missions

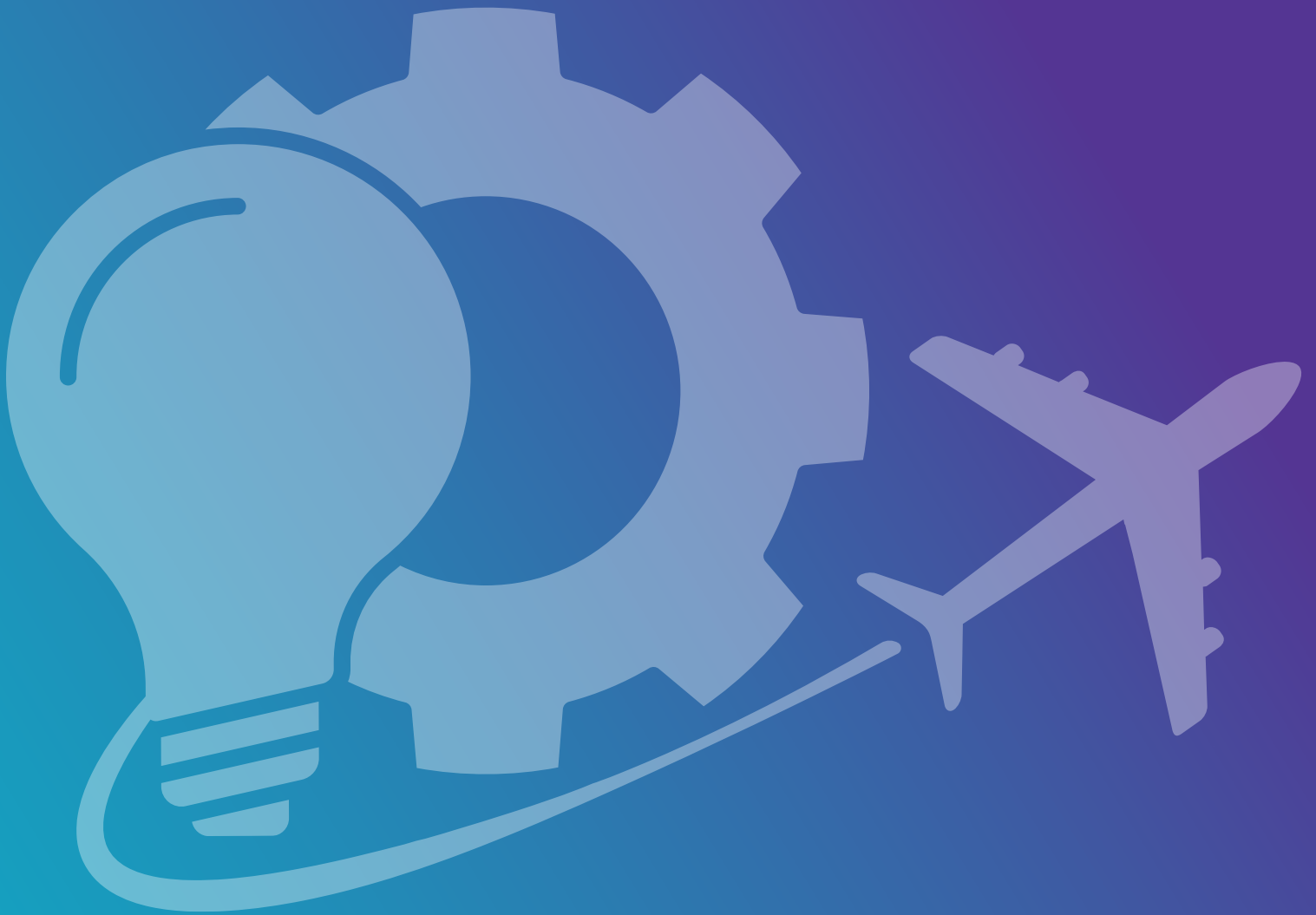
OIR worked with multiple NASA centers and U.S. government agencies to ensure timely approval of NASA license applications and export authorizations to support the success of high-visibility NASA missions. A few of the specific missions are Artemis, including continued development of [Gateway](#) and training and launch of a Canadian astronaut on Artemis II; International Space Station for eventual integrated crew launch of Russians on Starliner; and the Mars Sample Return flagship mission.



Gateway is an international collaboration to establish humanity’s first space station around the Moon as a vital component of the Artemis missions. Gateway will play a key role in helping NASA and its partners test technologies and capabilities required for a sustained human presence in deep space and chart a path to Mars. NASA is working with international partners to develop Gateway. ESA and JAXA are building the International Habitation Module. Japan will provide cargo resupply with an upgrade of its H-II Transfer Vehicle. ESA is providing the European System Providing Refueling, Infrastructure and Telecommunications module, and the Canadian Space Agency is developing Canadarm3, a robotic arm to perform science utilization and maintenance. The Mission Support community encourages and embraces international participation to help make ambitious missions possible.

Network Upgrades at Wallops

The Mission Support community made significant upgrades to the Wallops Flight Facility Range Mission Network in 2023, achieving successful implementation even during a heavy launch schedule. The Facility Unique Specialized Engineering team at Goddard Space Flight Center completed multiple phases of cabling and network upgrades that provide improved network performance, security, and reliability; incorporate simplified, centralized tools for managing the network; and offer potential long-term cost savings. The team completed the radar and mobile implementation, adding all ethernet Launch Trajectory Acquisition System and Ethernet minimum delay data format traffic to the new network. The Advanced Enterprise Global Information Technology Solutions team completed all cabling installations for the Range Control Center, including the installation, wiring, and testing of console video switchers and encoders and installation of video equipment on the test director and safety room video wall as well as expanding fiber connectivity.



IN·NO·VATE

CATALYZE ECONOMIC GROWTH AND DRIVE INNOVATION
TO ADDRESS NATIONAL CHALLENGES

INNOVATE

The Mission Support community is always inspired by NASA's third strategic goal: Innovate. This goal aims to catalyze economic growth and drive innovation to address national challenges, with priorities of innovating and advancing transformational space technologies and driving efficient and sustainable aviation. In support of and alongside these priorities, the Mission Support community strives for innovative approaches—whether in procurement, partnerships, infrastructure, leasing agreements, environmental remediation, sustainability, human health, aircraft asset management, or risk management.

Procurement Success

In support of the U.S. economy, the agency aims to procure American-made products, goods, and materials under contracts and grants. Toward this end, OP and OCFO coordinated closely with the Office of Management and Budget's Made in America Office. In 2023, more than 500 NASA acquisition professionals were trained on network supplier scouting to identify American companies, including small- and medium-sized companies. Also in 2023, OP, OCFO, and OCOMM launched a [webpage](#) to communicate NASA's efforts and commitment to the procurement of American goods and services.

In addition to American companies, NASA prioritized business with small companies, which are the backbone of the American economy and play a very critical role in propelling our nation forward into a new space age. Thanks to OSBP's efforts, **NASA garnered the Small Business Administration's Small Business Procurement Scorecard Grade of "A" for the sixth consecutive fiscal year in 2023.** The high grade is due in part to NASA's efforts to award more than \$3.6 billion dollars directly to various socioeconomic small businesses, which are made up of businesses owned by under-represented groups, along with \$3.5 billion subcontracted to small businesses from the agency's large contractors. The \$7.1 billion dollars obligated through its prime and subcontracts to small business equates to 36% of NASA's total obligated dollars in FY 2022.

Partnerships Promote Progress

In NASA's quest to explore the secrets of the universe for the benefit of all, the agency forms partnerships—non-procurement business relationships—with commercial industries, academic institutions, U.S. government agencies and state and local governments, professional associations, non-profits, and international entities.

Partnerships help the Agency accomplish its objectives through collaboration and by providing needed technical capabilities. They also support U.S. economic innovation and industrial competitiveness, serve as a tool for meeting NASA's mandate under the Space Act of encouraging the "fullest commercial use of space," helping to maintain essential NASA expertise and facilities, and advance NASA's Science, Technology, Engineering, and Mathematics (STEM) education and outreach goals. The Mission Support community helps to make these NASA partnerships possible.

For example, OGC, the NASA Partnerships Office, and NASA program offices significantly advanced technology development and commercialization through new data rights provisions in funded Space Act Agreements with dozens of U.S. companies, which will demonstrate lunar, on-orbit, and sustainable aviation technologies and maximize industry participation in NASA programs. Through funded Space Act Agreements, NASA provided funding to domestic commercial partners to accomplish agency objectives where direct benefit to NASA was not the principal purpose of the activity.



Partnerships Promote Progress (continued)

To help build resilience against the risks of climate change—for the nation and the world—Ames Research Center brought together experts from across NASA, government agencies, academia, and industry to address the increasing threat of wildfire in new ways. In April 2023 at Ames, NASA leadership joined elected officials and diverse partners, including philanthropic and venture capital organizations, for a roundtable discussion on innovative contributions to wildfire resilience. The media tour following showcased climate science expertise and innovative solutions to better fight large wildfires by increasing the role of aircraft—a goal of NASA’s Advanced Capabilities for Emergency Response Operations project. Coordinated with OLIA and OCOMM, these efforts directly supported the agency’s Wildland Fire Management Initiative and highlighted the need for strong collaborations to tackle these challenges.

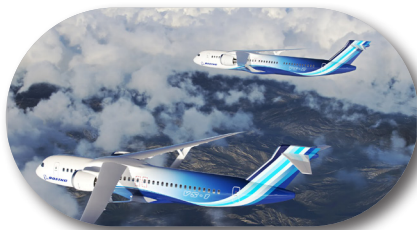
Further, NASA Partnerships enabled several exciting and critical accomplishments in 2023 that help set the stage for the next generation of science, technology, and exploration, including:



Selection of 23 U.S. companies to advance key technologies for exploration on the Moon and in space through the [Tipping Point](#) and [Announcement for Collaborative Opportunities](#) partnership competitions.



[Issuing an award](#) for NASA’s Sustainable Flight Demonstrator to help lead to greener, more fuel-efficient airliners, and achieving [X-plane status](#) for the effort, which the Air Force confers for development programs that set out to create revolutionary experimental aircraft configurations.



Moving toward a robust low-Earth orbit economy with selection of seven U.S. companies for the [Commercial Space Capabilities-2 initiative](#).



Signing a new [memorandum of understanding](#) with the U.S. Department of Agriculture that strengthens collaboration on improving agricultural and Earth science research, technology, agricultural management, and the application of science data and models to agricultural decision making. NASA and the U.S. Department of Agriculture intend to explore opportunities to improve crop performance to meet Earth- and space-based goals, including activities in support of NASA’s Artemis program.

To speed the processing time of the agency’s partnership agreements, the NASA Partnerships Office, together with OGC and OIIR, led the agency partnerships community in developing 72 process-streamlining initiatives, of which 57 have been implemented and 15 were in-process as of October 2023. Since the effort began, the average formulation time (78 days) sits well below the project goal (87 days), which means collaborations can start sooner. The NASA Partnerships Office also helped develop policies and procedures to begin the transition of interagency reimbursable agreements to Treasury’s federal-wide “G-Invoicing” system to ensure the agreements with federal partners are implemented in an efficient manner.

Mission-Driven, Sustainable Infrastructure

NASA's infrastructure provides foundational capabilities for the nation's space programs. The agency's unique testing and engineering capabilities require highly technical facilities, laboratories, and equipment. In some cases, these assets are found nowhere else on Earth. Making NASA's infrastructure more mission-driven will accelerate 21st century advancements.

NASA's Mission Support Council approved the Agency Master Plan in October 2023. The plan serves as a collaboratively developed strategic roadmap designed to provide a guide for addressing the deteriorating condition of real property assets over a 20-year horizon in a cost-effective manner that prioritizes mission requirements. OSI worked closely with the centers and mission partners to successfully develop an integrated Agency Master Plan, which is currently in the implementation phase.

Across the agency, the Mission Support workforce drove multiple successes in 2023 to revitalize and repurpose infrastructure to make the best use of space. Some examples include the following:

- Stennis partnered with NSSC to complete the consolidation of its headquarters facility, resulting in a cost avoidance of more than \$160 million and generating projected annual savings of \$7-10 million. Mission Support organizations, including OSI and OCIO, played an important role in the effort.
- NASA's Aircraft Management Advisory Board decided to vacate a leased hangar facility. The change will eventually free up resources that can be reprogrammed into executing science missions.
- Langley Research Center's near-term Workplace Revitalization Planning Team worked with Human Resources Office at Langley to relocate workforce to shared spaces in Langley's newest core buildings and other strategically identified buildings. The project provided overall cost savings and minimized disruptions and negative impacts to employee morale.
- At NASA Headquarters, MSHOO conceptualized and began developing a comprehensive, flexible plan for revitalizing and reimagining the existing NASA Headquarters to better enable hybrid work, rebuild a sense of onsite community, and learn and adapt over time to best support NASA's evolving missions.
- The agency also consolidated communications laboratory facilities and hardware from many different buildings at Glenn Research Center into the new [Aerospace Communications Facility](#). Over 70,000 square feet of older buildings can now be demolished, reducing Glenn's overall footprint and providing savings in energy use and maintenance costs.
- In a workshop conducted with OSI, the Facility Health Assessment effort at Ames Research Center evaluated more than 1 million square feet of facilities at the center. This allowed rapid development of a recommendation to divest of 13 buildings, reducing the center's footprint by more than 400,000 square feet, deferred maintenance by over \$24 million, and average annual maintenance costs by at least \$1 million. Based on the success of this pilot at the center, which will allow limited resources to be redeployed into higher priority facilities, it is now planned for implementation at other NASA centers.



Mutually Beneficial Leasing Agreements

NASA's Enhanced Use Leasing (EUL) authority allows NASA to enter into leases with private sector entities, state and local governments, and academic institutions as well as other federal agencies in areas of programmatic interest for lease of non-excess but underutilized agency properties at all centers. In order to facilitate a more expedient and robust EUL program to repurpose underutilized NASA facilities, OSI collaborated with OGC and OCFO to employ innovative EUL agreement processes and procedures.

The first EUL implemented at Marshall Space Flight Center in 2023 provided an opportunity for facility revitalization projects through net proceeds. Under EUL authority, NASA centers are allowed to make "proceeds" from the leasing of underutilized property and use them only for Headquarters-approved purposes, which include facility revitalization efforts. Additionally, Marshall and OSI established an EUL team, formulating and implementing a process that other centers are using as a benchmark.

Stennis Space Center executed two new EULs in 2023 in support of commercial space propulsion testing. The historic [A-2 Test Stand](#) was the subject of an EUL with Relativity Space to support advanced vertical first stage testing for their medium-to-heavy-lift reusable 3D printed rocket, Terran R. Additionally, Stennis executed an EUL with Rocket Lab USA Inc. for the mothballed A-3 Test Stand for the development of a test facility to test the Neutron rocket. Another example of a mutually beneficial agreement is at Ames Research Center. The center entered into an EUL in 2020 with the University of California, Berkeley. In 2023, the university announced plans with its development partner, SKS Partners, to invest \$2 billion to transform 36 acres of the NASA Research Park at Ames into a new innovation hub. The hub will bring together government, academia, and industry into 1.4 million square feet of office and research and development space, including laboratories, conference space, academic facilities, and retail amenities. The collaborations likely to form at the hub will pursue research in aeronautics, quantum computing, climate studies, space science, and technology development. In turn, this work is expected to fuel an increase in NASA's external partnerships, accelerate the transfer of technology and knowledge, and amplify the agency's economic impact. In addition, the relationship with Berkeley Space Center will increase the pipeline of diverse talent, provide more ways for employees to stay current in the state of the art, and increase NASA's ability to inspire future generations.



New Training Proactively Maintains Critical Assets

OSI's Space Environments Test Management Office provided training in reliability-centered maintenance and condition-based maintenance for managers, engineers, and technicians who support the Space Environments Testing infrastructure. These efforts led to the formulation of strategic maintenance plans for critical assets to ensure the assets function properly when they are required.



Cutting-Edge PFAS Treatment System

Per- and polyfluoroalkyl substances (PFAS) is an umbrella term for thousands of synthetic fluorinated chemicals that have been widely used for their chemical stability and because they repel water, stains, and oil. The characteristics that make PFAS effective for so many uses also prevent them from breaking down in the environment. As a result, the substances may remain in air, soil, surface water, and groundwater. NASA is committed to understanding and addressing [PFAS at its centers and facilities](#) and to protecting human health and the environment in all its activities.

Knowledge about the health effects of PFAS exposure is evolving but scientific studies have shown that exposure to some PFAS may be linked to harmful health effects in humans and animals. NASA began site inspections in 2019 and has completed them at all centers, component facilities, and work areas. These inspections confirmed whether PFAS were released into the environment, whether specific PFAS are present, and their concentrations.

To ensure safe drinking water from water sources on [NASA property at Wallops Flight Facility](#), Goddard Space Flight Center installed a cutting-edge PFAS treatment system and a new drinking water supply well in 2023. It also conducted robust public communication campaigns and employee sessions to provide information to stakeholders, media, and local communities.



On the Road to Sustainability Gains

Now and in the future, the Mission Support community will strive to meet or exceed [NASA's goals for sustainability](#) in all of the agency's affairs. In 2023, the Mission Support community achieved remarkable results through its conscientious operations and innovative approaches.

Across the agency, working with many NASA partners, OSI reported substantial sustainability gains in 2023. These include **reduced greenhouse gas emissions by 47%** from the FY 2008 baseline, **maintained carbon pollution-free electricity acquisitions at 41%** of the agency total, **reduced facility energy use intensity by 40%** from the FY 2003 baseline, and **reduced water use intensity by 33%** from the FY 2007 baseline. Total **sustainable building gross square footage has increased to 32%** and **renewable electricity use has increased to 10%** of total electricity.

OSI's Facilities and Real Estate Division (FRED) developed and submitted the agency's FY 2024 Carbon Pollution Free Energy Strategic Plan to the White House Council on Environmental Quality in September 2023. The plan received positive feedback and was integrated with the agency's Sustainability Strategic Plan for FY 2024.

OSI's LMD coordinated policy focusing on NASA center plans for workplace charging of privately owned zero emission vehicles (ZEVs). Alongside the review and validation of center charging practices and mechanisms for collecting fees, 125 charging ports were installed. The office also developed plans for the NASA ZEV Infrastructure Installation Support and ZEV outyear strategy formulation and budgeting.

To provide advanced analytics and visualization in real time to support energy saving goals, Langley Research Center coordinated with Mission Support organizations to continue development of the Intelligence Operations Portal. This campus-wide dashboard will integrate utility and energy data to provide views in real time. The benefits of real time information include improved utility monitoring for efficiency insights and load management, and enhanced integration enabling rapid maintenance response to problems. The first phase, completed in August 2023, included data on energy and water. Future phases will include the integration of natural gas, sewer, steam, and stormwater data.

White House Cancer Moonshot Initiative

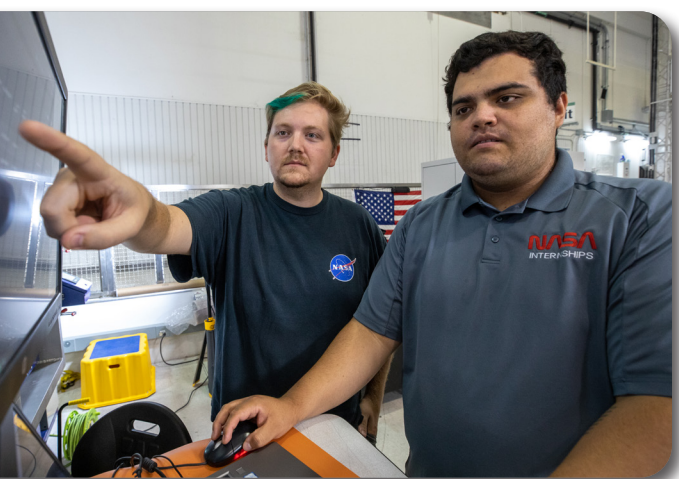
The White House Cancer Moonshot initiative is mobilizing efforts toward achieving two goals from President Biden and First Lady Jill Biden: to **prevent more than 4 million cancer deaths by 2047** and to improve the experience of people who are touched by cancer. A NASA executive from the Mission Support community's OCHMO is supporting the initiative.

In 2023, OCHMO contributed to creating three task forces, publishing campaigns encouraging people to get screened for cancer, enabling visits by astronauts to pediatric cancer hospitals, and coordinating across NASA to help identify pollutants and clusters of cancer using data from a NASA instrument that measures pollution called [Tropospheric Emissions: Monitoring Pollution \(TEMPO\)](#). This space-based instrument collects high-resolution measurements of ozone, nitrogen dioxide and other pollutants, data which will revolutionize air quality forecasts.



Ensuring Safe Decisions

NASA's Mission Support community includes an office that ensures NASA has the right aircraft capabilities it needs to meet NASA's mission requirements efficiently and effectively: ACMO. The community also includes OSMA, NASA's technical authority that assures the safety of and enhances the success of all NASA activities. In 2023, ACMO and OSMA rewrote NASA's policy on Aircraft Operations Management to reduce potential safety conflicts of interest and enhance operational safety. The new policy defines and separates operational safety considerations from mission requirements and resourcing considerations. This change is sure to keep safety at the forefront of decisions involving NASA aircraft.



Risk Management, Refined

MSD's MSIO collects and reviews information about risks to assess institutional impacts to the missions, prioritize risks, and enable decisions about approaching risks. In 2023, MSIO adjusted its strategy for reporting, managing, and mitigating risks to the MSEOs, TAs, and NASA centers by using a continuous risk management cyclical process to better inform decisions.

As an example, MSIO began a quarterly risk review to monitor risk strategies to identify positive impacts that mitigation efforts were having and adjust those that were not. Such a continuous risk management process enabled risk owners and managers to inform and influence decision making. Changes like this ensured institutional risk to NASA's missions were addressed properly.



AD·VANCE

ENHANCE CAPABILITIES AND OPERATIONS TO CATALYZE
CURRENT AND FUTURE MISSION SUCCESS

ADVANCE

The Mission Support community had a stellar year leading NASA's fourth strategic goal: Advance. This goal aims to enhance capabilities and operations to catalyze current and future mission success. It includes attracting and developing a talented and diverse workforce, transforming mission support capabilities for the next era of aerospace, and building the next generation of explorers. The Mission Support community worked on this goal through new recruiting strategies, unique training and development opportunities, outreach to diverse communities, increased cybersecurity, and more.

New Recruiting Strategies

The NASA workforce of more than 18,000 professionals is a diverse team united by a shared purpose of discovery and exploration to benefit humanity. To expand NASA's ability to find top diverse talent, OCHCO, ODEO, the Office of STEM Engagement (OSTEM), and other NASA organizations collaborate to provide modern, relevant recruiting content and processes. In 2023, OCHCO used feedback and surveys from the workforce, ensuring input from a wide range of centers, roles, and levels, to refresh NASA's Employer Value Proposition—its unique selling point to potential employees—with a focus on the employee as a whole human. This updated concept is reflected in recruitment materials and campaigns and on the new careers-focused web pages launched in 2023.

OCHCO also developed NASA's agencywide Recruitment Ambassadors Initiative in 2023 to ensure the value of NASA as an employer is promoted consistently. The initiative provides guidance for in-person events, digital recruiting best practices, and external recruitment resources for hiring managers across directorates, teams, centers, and other locations. Ambassadors connect, learn, and support collaboration for recruitment activities in an agencywide online community.

To expand its reach for talent even more, OCHCO worked with ODEO's new Employee Resource Groups (ERGs) Coordinator to provide recruitment services to ERGs, including funding for conferences and targeted diversity, equity, inclusion, and accessibility (DEIA) content development. NASA's ERGs are grassroots groups formed by employees around a characteristic or area of interest, and are vital to ensuring NASA's culture is equitable, inclusive, and accessible.

In a specific case at Goddard Space Flight Center, OCHCO used broader external advertisements and refined interview questions. As a result, there was a **20% increase in external hires**, which diversifies the center. In addition, because project manager positions are open to a wider candidate pool, the number of **female project managers increased by 3.5%**. Diversity of experience and staff means Goddard is creating a work environment that prioritizes diverse ideas and contributions for effective decisions and solutions.

FY 2023 AWARDS

The agency's commitment to DEIA in recruitment positioned NASA as an employer of choice and led to multiple awards in FY 2023:

- ★ Top 20 Government Employer according to [STEM Workforce Diversity Magazine](#), [Woman Engineer Magazine](#), and [Equal Opportunity Magazine](#)
- ★ [America's Best Employers for Women](#) (only federal agency included)
- ★ [Best U.S. Employers for New Graduates](#) (No. 2)
- ★ [America's Best Employers for Diversity](#) (highest ranked in category of Aerospace and Defense)
- ★ [America's Best Large Employers](#) (highest ranked government agency) by *Forbes*

23 in '23: Attracting the Best Talent



To widen recruiting scope, OCHCO and OSTEM at Langley Research Center collaborated with Virginia Space Grant Consortium and Virginia Community College System to use non-traditional recruiting approaches. In 2023, Langley initiated an outreach campaign to engage all 23 Virginia Community Colleges. Called “23 in ‘23,” this campaign engaged with community college students, faculty, and administrators to share information regarding apprenticeships, internships, and employment opportunities at Langley and other NASA centers. As of September 2023, the team has successfully engaged with more than 600 students.

Workforce Diversity and Inclusion

Diversity and inclusion are integral to mission success at NASA. The principles drive the utilization of the talents, backgrounds, and capabilities of individuals and teams, which enables a work environment where diverse ideas are highly valued and critical to effective technical solutions. In turn, individuals can reach their potential and maximize their contributions.

To advance gender equity and equality at NASA in 2023, ODEO led the development, timely submission, and implementation of NASA’s Gender Equity Plan. After receiving positive feedback from the White House on the plan’s overarching quality and impact, NASA’s program activities were selected by the White House Gender Policy Council for inclusion in the progress report to the President on the U.S. National Strategy on Gender Equity and Equality.

ODEO also managed the successful development and completion of a plan to ensure equal access to all employment opportunities for Asian American, Native Hawaiian, or other Pacific Islander employees within the agency. NASA’s White House Initiative on [Asian Americans, Native Hawaiians, and Pacific Islanders Equity Action Plan](#) captures activities aimed at outreach, capacity building, and language access.

Along with making plans, ODEO took action across NASA centers to honor employees’ diverse needs. These upgrades include gender neutral restrooms, an IT capability for pronouns and names displays, and reflection and contemplation rooms. With support from ODEO, PMSO released a video to raise awareness about accessibility and inclusion called [Explorers, Adventurers, and Innovators with a Disability at NASA](#).

To evaluate NASA’s efforts across equity, inclusion, anti-harassment climate, accessibility, absence of discrimination, psychological safety, and comfort, ODEO launched the DEIA Organizational Climate Survey in 2023. The results will reveal whether NASA employees are feeling honor and respect from their employer and will guide NASA in expanding inclusion and belonging for everyone.



Employee Training and Development

NASA is devoted to the people who make missions possible, and the Mission Support community makes sure to show that dedication through action. The community supported training and development for employees in a multitude of ways.

One of the Mission Support community's technical authorities, OCHMO, hosted and promoted **more than 1,600 outreach events** for the employee assistance program in 2023. New educational series included caregiver education, brain health, suicide awareness and prevention, and understanding Alzheimer's disease. The topic with the most employee engagement was Alzheimer's disease, which garnered significant praise and participation of more than 300 people. Such efforts aim to enhance employees' wellbeing and show care for them as individuals.

OCHCO launched the Women's Executive Leadership Lab in February 2023 as part of NASA's DEIA efforts. The in-person cohort-learning opportunity is for women executives and aspiring executives and is designed to equip women leaders with skills to reach a greater level of influence. This is in addition to conducting a pilot program of NASA Next, a mid-level leadership program that focuses on executive core qualifications, as well as launching a 12-month Aspiring Executive Program (ASPIRE), which provides extensive leadership development. Together these OCHCO initiatives strengthen the focus on developing NASA leaders.

OCFO also provided specialized training to a specific group in FY 2023—employees in the NASA CFO enterprise and partnering mission support offices. Through [CFO University](#), OCFO **trained 2,500 employees**, bringing the three-year average to 2,800 employees per year. CFO University offers NASA-focused financial, management, program planning and control, and management and leadership training. To provide mentoring for the same employee group, OCFO launched OCFO-Connect, which matched 50 mentors with 50 mentees in 2023. The mentoring initiative included webinars, speed mentoring, one-on-one sessions, and a review and closeout at the end of the program.

To encourage career growth for interested employees at Langley Research Center, Mission Support offices collaborated to hold a Career Exploration Fair that incorporated speed-mentoring, mock interviews, panel discussions, exhibitor booths, and interactions with senior leaders from across the center. Ultimately, the fair offered employees an opportunity to explore potential career paths, learn about available resources, and gain career advice from senior employees.

Perhaps because of the care shown to NASA civil servant employees, when the annual Federal Employee Viewpoint Survey (FEVS) was administered, it got a 77.5% response rate—the highest NASA response rate ever! Some new FEVS implementation initiatives organized by OCHCO included an agencywide FEVS video; initial results available to leaders in three weeks; and new self-service tools for results, including a PowerPoint export feature. In 2023, [The Partnership for Public Service](#) named NASA the Best Place to Work in the federal government among large agencies for the [eleventh year in a row](#).



Outreach Prioritizes Diverse Communities

NASA requires a talented and diverse workforce now—and in the future—to meet its goals. Across the agency, the Mission Support community develops and nurtures opportunities to guarantee NASA inspires and engages the people it will need.

Eager to reach broad and diverse audiences, OCOMM worked on partner collaborations including LEGO, Peanuts, Google, Girl Scouts, Crayola, Sesame Street, USPS, Minecraft, Third Rock Radio, and others. Partnerships with visible brands help NASA's reach and engage untapped audiences.

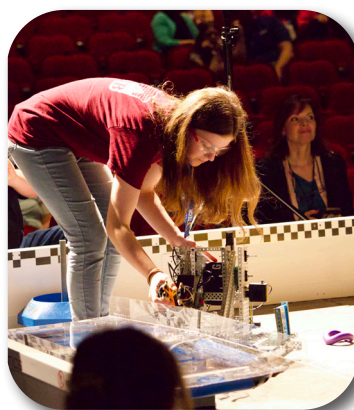
Second Gentleman Douglas Emhoff joined Ames Research Center leadership to deliver hands-on science, technology, engineering, and math kits, called Learning Lunchboxes, in Oakland, California. The kits are designed to inspire the Artemis generation to learn about NASA's Artemis program, which will land the first woman and person of color on the Moon. Representatives from the National Space Council and local STEM organizations also attended, and approximately 500 Learning Lunchboxes were handed out. Continuing to expand NASA's connections with diverse groups, OSBP partnered with the Office of STEM Engagement to conduct the Technology Infusion Road Tour Initiative for historically black colleges and universities (HBCUs) and other minority serving institutions (MSIs). The gatherings inform presidents, chancellors, administrators, staff, and students from HBCUs and other MSIs about opportunities within NASA, with NASA partners, and other external government agencies.



As part of the 2023 NASA Equity Action Plan to expand access to NASA information for limited-English proficient populations, OCOMM translated public-facing products that develop and sustain interest in STEM careers. In fact, NASA's Spanish-language social media accounts reached 3.4 million followers, an increase of 30% compared to FY 2022.

Within the same Equity Action Plan, OP set targets for contracting including a 50% increase in outreach events by FY 2029, and annual growth of 5%-10% in participation from underserved communities. Amazingly, with over 20 outreach efforts targeting diverse businesses, this goal was met in 2023—six years early! The office also participated in 13 events with organizations like the U.S. Black Chambers Inc. and the U.S. Hispanic Chamber of Commerce.

To emphasize and strengthen efforts to reach limited-English proficient populations, ODEO led the development of and updates to NASA's agency-level Language Access Plan at NASA centers. The office aims to create a more equitable communication strategy for these populations.



Also in 2023, twenty-four middle and high school students from two schools got to participate in a day of robotics and a day of model rocketry, thanks to the Katherine Johnson Independent Verification and Validation (IV&V) Facility's Education Resource Center (ERC), part of OSMA. Following the week-long summer camp at the West Virginia Schools for the Deaf and the Blind, teachers and staff continue to support robotics and rocketry throughout the year with equipment and training from the NASA IV&V ERC. The goal is to inspire and engage America's youth and increase the pool of diverse future employees.

Outreach Prioritizes Diverse Communities (continued)



Another initiative encouraged students to pursue degrees and careers in STEM through OSTEM's Artemis Student Challenges led by Marshall Space Flight Center. The Human Exploration Rover Challenge hosted more than 500 students with 65% identifying as underrepresented learners. Out of 48 teams, six were from MSIs while the Student Launch Competition had 69 teams including 15 from MSIs.

To promote NASA grant opportunities, NSSC hosted 400 attendees from U.S. universities and institutions in a two-part "Ask NASA" event series with Grants Policy and Compliance, OSTEM, the Science Mission Directorate, and ODEO. The first event focused on how to apply and obtain NASA grants. The second event covered NASA grant policies, programs, and processes; provided post-award insights to NASA grant recipients on best practices; and shared NASA's progress on DEIA policies and practices. Participants reported they are now better poised to apply for NASA grants.

Connections with Congress

Mission Support organizations engage with Congress through a host of activities so Congress may understand, support, and actively promote NASA, NASA's goals and objectives, and U.S. leadership in space exploration and scientific discovery.

In coordination with organizations across the Mission Support community such as OCOMM, OLIA initiated a downlink—an event where people on Earth can see and speak with astronauts aboard the International Space Station—between Astronaut Frank Rubio and approximately 20 members of the Congressional Hispanic Caucus. Frank Rubio made history in 2023 after spending 371 days in space aboard the International Space Station, the longest single spaceflight ever made by a U.S. astronaut.

In 2023, OLIA also prepared witnesses, including at least one prep session, and drafted and cleared testimony for hearings including "Advanced Air Mobility: The Future of Unmanned Aircraft Systems and Beyond," "The Future of Flight: Next Generation Aviation Technologies," "Examining NASA's FY24 Budget and Priorities," and "Oversight of Federal Agencies' Post-Pandemic Telework Policies."



OLIA also coordinated with a host of Mission Support organizations to present a package of 19 NASA legislative proposals to Congress, several of which have been introduced as legislation and as amendments to major legislation.

Working Together on Processes and Procedures

Always eager to work better together, organizations in the Mission Support community improved a multitude of processes and procedures within NASA. These achievements translate to increased efficiencies, cost savings, accessible information, and stellar financial reporting.

To improve efficiencies and reduce costs related to legal affairs, OGC streamlined intellectual property practices including rapid automated review for patent fees, simplified the process for royalty payments to inventor beneficiaries, implemented workflow improvements with the Technology Transfer Office, enabled software releases using commercial licenses, and improved the automated system for review of scientific and technical publications.

NSSC's Intelligent Automation Services (IAS) continues to automate low value work using Robotic Process Automation (RPA) and scripting. As an example, in collaboration with the OCFO Travel Functional Champion and the Individually Billed Account Automation Teams, NSSC is keeping travel cardholders on track through automation of notifications and alerts to cardholders through email. IAS's 10 new automations deployed in FY 2023 translate to 9,697 projected workforce hours avoided, which yields 126,369 cumulative hours saved since inception.

Through deployment of the Cognizant Federal Agency (CFA), OP's Enterprise Pricing Office has enabled a remarkable impact on NASA's procurement efficiency. In this role, OP is providing a platform that caters to the agency's needs by providing its own audit and contract administration services that contribute to timely and quality audits, which yields cost savings and timely contract closeout. In FY 2023, this initiative saved NASA \$4.2 million, and maintains the contract closeout backlog below 50%. NASA now serves as CFA for 153 companies, partnering with various entities to provide timely and high-quality audit services.

OP designed and developed interactive dashboards to enable near real-time access to authoritative data sources. These dashboards support concise and consistent information delivery for internal and external requests, thorough data analysis, and cohesive messaging for the NASA enterprise. They also provide insight on agency contractual performance, historical performance, and center- and agency-level vendor timeliness.

Sterling Reputation in Financial Reporting



For the twelfth year in a row, NASA's Annual Financial Report issued by OCFO earned an unmodified audit opinion with no material weaknesses or significant deficiencies. Also in 2023, OCFO received a Certificate of Excellence in Accountability Reporting, including a "Best in Class" award, from the Association of Government Accountants. These awards recognize NASA's financial reporting, including the balanced and informative presentation of the agency's mission performance results.

Key Steps Strengthen Cybersecurity

NASA has been undertaking steps to ensure its systems and hardware are more secure and resilient against cyber threats. **In 2023, OCIO made several strides to improve cybersecurity.**

ZERO TRUST

Zero Trust is a leading cybersecurity approach in government and the private sector in which each access request must be authorized. Achieving this while permitting easy access to appropriate systems and data requires a robust, coordinated set of initiatives. Efforts completed this year for Zero Trust include enhancements to credentialing, data stewardship, cloud capabilities, and collaboration tools. This translates to better security without compromising NASA's innovative culture.

ENTERPRISE DATA PLATFORM (EDP)

An EDP facilitates a culture of data transparency, fair and equal access, and collaboration across organizations. NASA EDP 1.0 production capability was delivered early in 2023. As the platform is expanded, users will gain an enterprise ability to store, manage, analyze, and visualize data for improved visualization and decision making.

CYBERSECURITY SCORECARD

NASA information system owners, information system security officers, authorizing officials, and leadership now have visibility into a single, user friendly, and automated cybersecurity scorecard designed and developed by OCIO in 2022 and fully implemented throughout the agency in 2023. All organizations now use the scorecard. This allows NASA leaders to understand and manage IT risks effectively.

EMERGENCY COMMUNICATIONS

In the event of a catastrophic information technology failure due to a cyberattack or other means, the Agency Emergency Management Team, a part of OPS, worked with OCIO on a new method to ensure critical mass communications capabilities. In the case of a launchpad issue or complete loss of email, a partitioned component will send SMS text messages across NASA to relay the failure, workaround, or other updates.

Steps Behind the Scenes Improve Cybersecurity

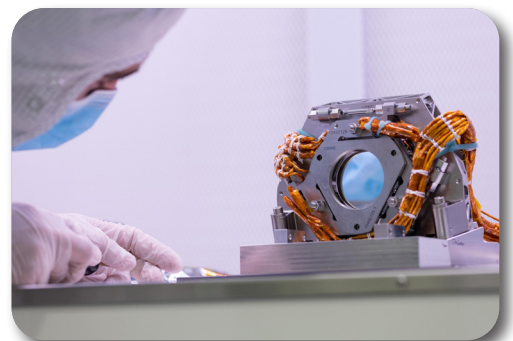
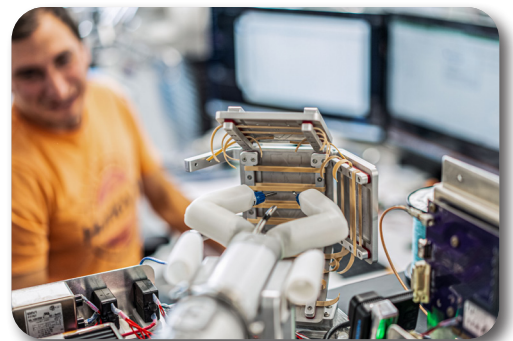
In 2023, the OCIO team at Marshall Space Flight Center designed and implemented a technique that enhanced Marshall's ability to implement **cybersecurity fixes on more than 7,000 Marshall end-user devices**. The implementation required extensive testing and coordination with all center directorates to ensure continued operations. This effort improves Marshall's cybersecurity posture and can be leveraged across all NASA centers, resulting in more secure data and devices.

Digital Engineering Earns New Insights

Digital engineering (DE) seeks to improve how the field of engineering operates—effectively managing complexity, reducing cost and schedule, and improving product integrity via the integration of processes, digital tools, and techniques along with seamless flow of information throughout the engineering system development and operations lifecycle. NASA's DE team in OCE is leading the way with award-winning work. A NASA DE [paper on the NASA Orion Digital Twin](#) submitted to the 2023 International Council on Systems Engineering International Symposium was voted Best Paper in the Models and Simulations category.

NASA is also engaged with other federal agencies on common DE solutions and lessons learned. The NASA-initiated cross-agency DE Technical Working Group, spanning Department of Defense, Department of Energy, Federal Aviation Administration, and intelligence agencies, has identified top desired DE capabilities and current pain points. In October 2023, there was a follow-on gathering of the agencies hosted by the Undersecretary of Defense to continue collaboration. NASA DE worked with the Department of Defense to resolve a long-standing access barrier to sharing information between military and non-military DE teams. The Undersecretary of Defense brought online a common protected area for all the agencies to share unclassified information, which bolsters effective DE collaboration.

A partnership between the DE team and OCIO led in 2023 to the development of a software management capability that had been called "impossible" for more than a decade. Dialogue led to innovation that leveraged and integrated existing data across different organizations to garner new insight into all the software installed on the workforce's computers for any given organization in engineering. The resulting visibility dramatically increased the ability to manage software titles and improved IT security. OCE and OCIO are now exploring how this type of approach could help to streamline the agency's most intensive time-consuming federal IT reporting and planning processes.



MISSION SUPPORT COMMUNITY BY THE NUMBERS

MSD FRONT OFFICE

AIRCRAFT CAPABILITY MANAGEMENT OFFICE

Safe execution of
6,561
flight hours



MISSION SUPPORT RESOURCES MANAGEMENT OFFICE

\$3.5B Budget managed
for the Mission Support Community



MISSION SUPPORT INTEGRATION OFFICE

Held **two forums** in which more than
35 executive leaders
from across NASA
met to solve
problems together



PROGRAM MANAGEMENT AND SUPPORT OFFICE



923
Views

5
Disability resources shared

684
Devices viewed the video

4
NASA employees shared
their perspectives

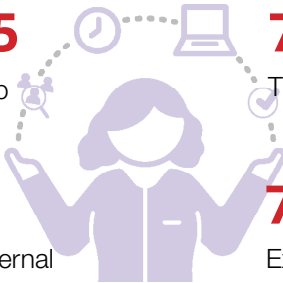
(Oct. - Dec 2023)

DIRECT REPORTS

OFFICE OF CHIEF HUMAN CAPITAL OFFICER

180,285

Number of job
applicants



75 days

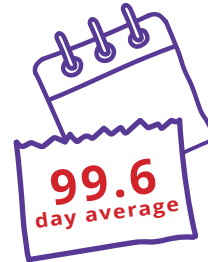
Time to hire

1,957

Internal and external
hiring actions completed

78

Executive
positions filled



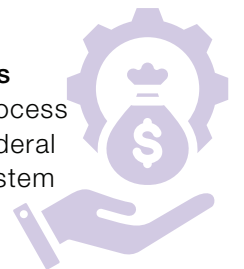
OFFICE OF PROCUREMENT

Reduced the average
procurement administrative lead
time across the enterprise

NASA SHARED SERVICES CENTER

Eliminated
6,000 manual
transactions

using the first Robotic Process
Automation within the Federal
Personnel and Payroll System
environment



OFFICE OF STRATEGIC INFRASTRUCTURE

over
300
participants

Launched **Environmental Management
Division University**, an agency wide voluntary
professional development resource for learning more
about environmental compliance,
conservation, sustainability, and restoration

OFFICE OF PROTECTIVE SERVICES



92,282 Disposal items removed
from NASA centers



Responded to over
15,000 emergency
calls
across the agency

PARTNER OFFICES

OFFICE OF COMMUNICATIONS


387.1 M

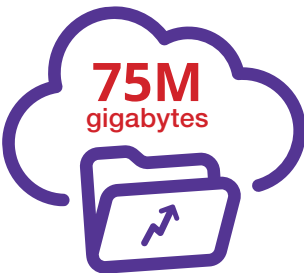
NASA social media followers – up 19% from 2022

(As of Oct. 2023)

11.5M
 subscribers 

NASA's flagship YouTube reached a milestone of 10 million subscribers in FY23 and now exceeds 11.6 million subscribers

OFFICE OF THE CHIEF INFORMATION OFFICER


75M
gigabytes

Cloud storage increased to securely move missions forward

OFFICE OF THE GENERAL COUNSEL

51 Day reduction in processing time for more than 800 agreements, valued at \$2.6B in reimbursable work


More than **\$100M** in cost avoidance

Provided lead attorney for newly formed OGC Software Management and Audit Resolution Team resulting in significant reduction and avoidance of claims arising from ill-advised software license terms and conditions

OFFICE OF SMALL BUSINESS PROGRAMS

251,833
OSBP Facebook followers

24,871
OSBP followers on "X", formerly known as Twitter

3,339
OSBP Mobile App iOS and Android users

738
OSBP NASA Vendor Database active users

OFFICE OF DIVERSITY AND EQUAL OPPORTUNITY

97 NASA Employee Resource Groups (ERGs) across 11 affinity types that are in the new 2023 NASA-wide ERG program plan



OFFICE OF LEGISLATIVE AND INTERGOVERNMENTAL AFFAIRS

247 Individual responses to letters, email and other congressional inquiries

133 Outreach visits to congressional offices

130 Individual meetings with representatives/senators

6 State capitol days



PARTNERSHIPS OFFICE

2,631 Active partnership agreements agency wide:

- 1,419 with the U.S. commercial sector, state and local governments, academic institutions, and non-profits
- 539 with other federal agencies
- 673 with international entities



721 New domestic and international partnership agreements signed in FY23 agency wide

OFFICE OF THE CHIEF FINANCIAL OFFICER

Received NASA's **12th** consecutive unmodified audit opinion



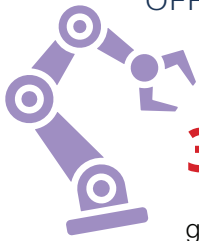
OFFICE OF INTERNATIONAL AND INTERAGENCY RELATIONS

Processed **873** foreign travel requests for NASA Headquarters employees and NASA astronauts



TECHNICAL AUTHORITIES

OFFICE OF SAFETY AND MISSION ASSURANCE



NASA IV&V hosted and supported over
30 robotics events in West Virginia en-
gaging **6,000+** students

The NASA IV&V Program identified over

1,600 high-severity software defects

on NASA's highest profile missions (resulting in improved quality, safety, security, and reliability of the mission system software)



OFFICE OF THE CHIEF HEALTH AND MEDICAL OFFICER

Hosted the 10th Annual NASA Moves!

3,500 employees



700 million steps



42 technical briefs

To aid with the development of hardware, systems, and vehicles, as well as human needs and limitations

OFFICE OF THE CHIEF ENGINEER

NASA Engineering and Safety Center conducted

more than **80** independent assessments

of work related to NASA's highest risk and highest priority missions



CENTERS

AMES RESEARCH CENTER

126 Total media mentions

of NASA and the University of California, Berkeley, on Oct. 16-17, 2023



GLENN RESEARCH CENTER

89.6K Square feet reduction of footprint modernization efforts



GODDARD SPACE FLIGHT CENTER

20% Increase in external hires,

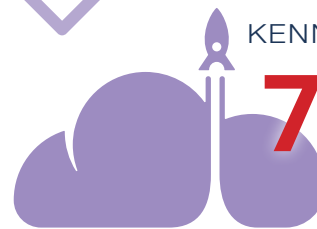
improving the pipeline and diversifying the center



JOHNSON SPACE CENTER

Johnson's Business Development enabled the execution of more than **60** international and domestic loan agreements for material from asteroid Benu

together with OGC, Technology Integration Office, the Johnson Astromaterials Acquisition and Curation Office, and OIR



KENNEDY SPACE CENTER

72 Launches

LANGLEY RESEARCH CENTER



8 Awards

(Design, engineering, construction, LEED Gold)

MARSHALL SPACE FLIGHT CENTER

Over **15%** Workforce with disabilities, exceeding the federal goal by 3.25%



STENNIS SPACE CENTER

331 Community sites (300 domestic, and 31 international sites)

operating student AstroCamp activities as part of SMD's Science Activation, NASA ASTRO CAMP® Community Partners program



ACRONYM	ACRONYM DEFINITION
3D	Three-dimensional
ACMO	Aircraft Capability Management Office
AOC	Administrative Order on Consent
ASPIRE	Aspiring Executive Program
B777-200ER	Boeing 777 - 200 Extended Range
CFA	Cognizant Federal Agency
CFO	Chief Financial Officer
COPV	Composite overwrapped pressure vessels
DE	Digital Engineering
DEIA	Diversity, Equity, Inclusion, and Accessibility
EDP	Enterprise Data Platform
EMD	OSI's Environmental Management Division
EPOC	Exploration Production and Operations Contract
ERC	Education Resource Center
ERG	Employee Resource Group
ESA	European Space Agency
EUL	Enhanced Use Leasing
FEVS	Federal Employee Viewpoint Survey
FRED	OSI's Facilities and Real Estate Division
FY	Fiscal year
HBCUs	Historically black colleges and universities (singular form is HBCU, historically black college or university)
HD	High definition
HELIOS	High Energy Laser with Integrated Optical-dazzler and Surveillance
HQ	Headquarters
IAS	Intelligent Automation Services
IT	Information Technology
IV&V	Independent Verification and Validation
JAXA	Japan Aerospace Exploration Agency
LMD	OSI's Logistics Management Division
MAV	Mars Ascent Vehicle
MAVIS	Mars Ascent Vehicle Integrated System
MSRMO	Mission Support Resources Management Office
MSD	Mission Support Directorate
MSEO	Missions Support Enterprise Organization
MSHOO	Mission Support and Headquarters Operations Office
MSIs	Minority serving institutions (singular form is MSI)
MSIO	Mission Support Integration Office
NASA	The National Aeronautics and Space Administration
NESC	NASA Engineering and Safety Center
NextSTEP-2	Next Space Technologies for Exploration Partnerships-2
NSSC	NASA Shared Services Center

Continued on next page

ACRONYM	ACRONYM DEFINITION
OCE	Office of the Chief Engineer
OCFO	Office of the Chief Financial Officer
OCHCO	Office of the Chief Human Capital Officer
OCHMO	Office of the Chief Health and Medical Officer
OCIO	Office of the Chief Information Officer
OCOMM	Office of Communications
ODEO	Office of Diversity and Equal Opportunity
OGC	Office of the General Counsel
OIIR	Office of International and Interagency Relations
OLIA	Office of Legislative and Intergovernmental Affairs
OP	Office of Procurement
OPS	Office of Protective Services
OSBP	Office of Small Business Programs
OSI	Office of Strategic Infrastructure
OSIRIS-REx	Origins, Spectral Interpretation, Resource Identification, and Security-Regolith Explorer
OSMA	Office of Safety and Mission Assurance
OSTEM	Office of STEM Engagement
PFAS	Per-and polyfluoroalkyl substances
PMSO	Program Management and Support Office
RPA	Robotic Process Automation
SLD	Sustaining Lunar Development
SLS	Space Launch System
SMS	Short Message/Messaging Service
SSC	Sacred Sites Council
SSFL	Santa Susana Field Laboratory
STEM	Science, Technology, Engineering, and Mathematics
STMD	Space Technology Mission Directorate
STEM	Science, Technology, Engineering, and Mathematics
STMD	Space Technology Mission Directorate
TA	Technical Authority
TEMPO	Tropospheric Emissions: Monitoring Pollution
TROPOZ	Tropospheric Ozone Lidar System Outdoor Laser and Stratospheric Ozone
U.S.	United States
USPS	U.S. Postal Service
XRISM	X-ray Imaging and Spectroscopy Mission
ZEV	Zero emission vehicle

APPENDIX