National Aeronautics and
Space Administration

NOVEMBER 2020

NASA PRESIDENTIAL TRANSITION BINDER

www.nasa.gov

TABLE OF CONTENTS

1 STRATEGIC MATERIAL

1.1 Strategic Plan and Agency Leadership Summary

The NASA Strategic Plan: *https://www.nasa.gov/sites/default/files/atoms/files/nasa_2018_strategic_plan.pdf*

NASA's Vision

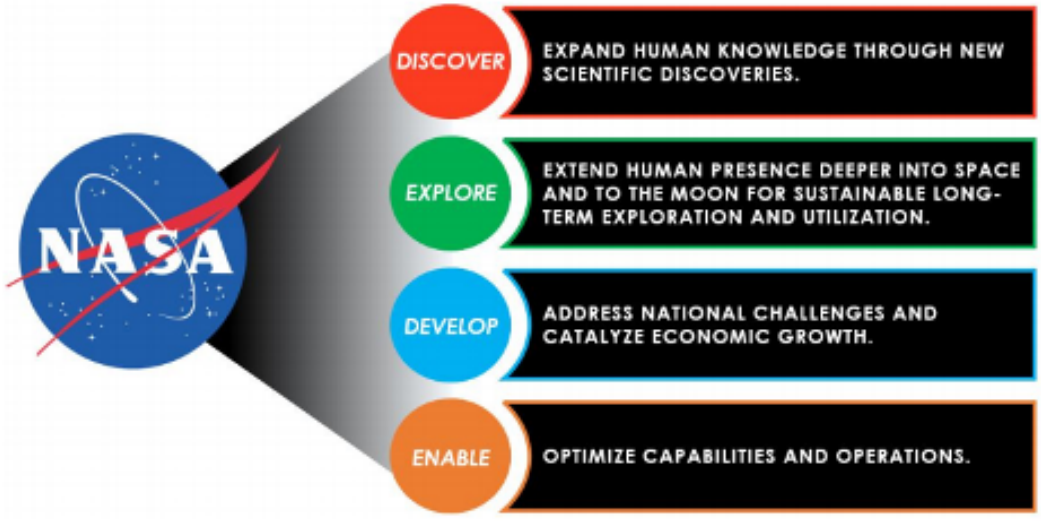
To discover and expand knowledge for the benefit of humanity.

NASA's Mission

Lead an innovative and sustainable program of exploration with commercial and international partners to enable human expansion across the solar system and bring new knowledge and opportunities back to Earth. Support growth of the Nation's economy in space and aeronautics, increase understanding of the universe and our place in it, work with industry to improve America's aerospace technologies, and advance American leadership.

NASA's Strategic Goals

NASA's historic and enduring purpose is aligned to four major themes, each characterized by a single word, that are reflected throughout the Agency's activities:



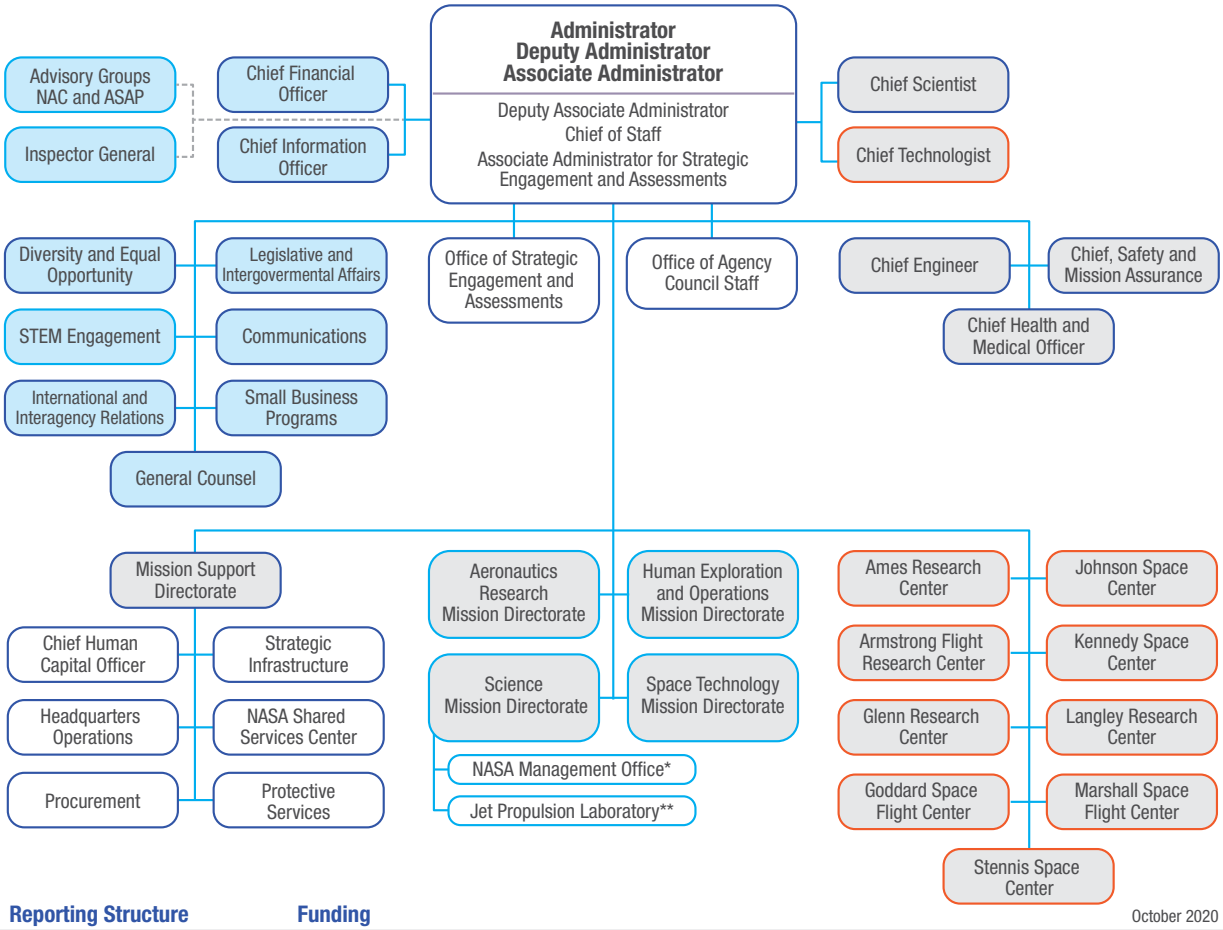
NASA 2018 Strategic Plan Framework

Theme	Strategic Goal	Strategic Objective
Discover	Expand human knowledge through new scientific discoveries	**1.1:** Understand the Sun, Earth, solar system, and universe **1.2:** Understand responses of physical and biological systems to spaceflight
Explore	Extend human presence deeper into space and to the Moon for sustainable long-term exploration and utilization	**2.1:** Lay the foundation for America to maintain a constant human presence in Low Earth Orbit enabled by a commercial market **2.2:** Conduct exploration in deep space, including to the surface of the Moon
Develop	Address national challenges and catalyze economic growth	**3.1:** Develop and transfer revolutionary technologies to enable exploration capabilities for NASA and the Nation **3.2:** Transform aviation through revolutionary technology research, development, and transfer **3.3:** Inspire and engage the public in aeronautics, space, and science
Enable	Optimize capabilities and operations	**4.1:** Engage in partnership strategies **4.2:** Enable space access and services **4.3:** Assure safety and mission success **4.4:** Manage human capital **4.5:** Ensure enterprise protection **4.6:** Sustain infrastructure capabilities and operations

Agency Leadership

Office of the Administrator ("A Suite")

The Office of the Administrator provides overall leadership, planning, policy direction, management, and coordination for all NASA activities.



Note: Administrator may delegate direct reports to Deputy Administrator at his/her discretion.

* NMO oversees the Jet Propulsion Laboratory contract.

** Programmatic reporting to the Science Mission Directorate Associate Administrator. JPL will participate in Agency-level functions, such as APMC.

NASA Administrator

The Administrator leads the Agency and is accountable to the President for all aspects of the Agency's mission, including establishing and articulating the Agency's vision, strategy, and priorities and overseeing successful implementation of all supporting policies, programs, activities, and performance assessments. The Administrator performs all necessary functions to govern NASA operations and exercises the powers vested in NASA by law. The Administrator chairs the Executive Council.

NASA Deputy Administrator

The Deputy Administrator advises the Administrator on overall leadership, planning, and policy direction for the Agency. The Deputy Administrator performs the duties and exercises the powers delegated by the Administrator. The Deputy Administrator acts for the Administrator in his or her absence by performing all necessary functions to govern NASA operations and exercise the powers vested in NASA by law.

Associate Administrator

The Associate Administrator performs the duties and exercises the powers delegated by the Administrator and acts for the Administrator in the absence of the Administrator and Deputy Administrator. The Associate Administrator is responsible for integrating the technical and programmatic elements of the Agency and oversees the Agency's Centers, Mission Directorates and their programs, and Technical Authorities. Additional responsibilities include overseeing the planning, directing, organization, and control of the day-to-day Agency technical and programmatic operations, including establishing controls over Agency activities, providing a means for evaluating missions. The Associate Administrator chairs both the Acquisition Strategy Council and the Agency Program Management Council.

Stephen Jurczyk became NASA's Associate Administrator, the Agency's highest-ranking civil servant position, in May 2018. Prior to this assignment, he was the Associate Administrator of the Space Technology Mission Directorate since June 2015. In this position he formulated and executed the Agency's Space Technology programs, focusing on developing and demonstrating transformative technologies for human and robotic exploration of the solar system in partnership with industry and academia.

He previously was the Director of NASA's Langley Research Center in Hampton, VA. Named to this position

Stephen Jurczyk

in May 2014, he headed NASA's first Field Center, which plays a critical role in NASA's aeronautics research, exploration, and science missions. Jurczyk served as Langley's Deputy Center Director from August 2006 until his appointment as Director.

Extended bio: *https://www.nasa.gov/directorates/spacetech/about_us/bios/jurczyk_bio.html*

Deputy Associate Administrator

The Deputy Associate Administrator is responsible for integrating the mission support elements of the Agency. The Deputy Associate Administrator oversees the Agency's mission support functions through the Mission Support Directorate, Centers, and appropriate staff offices. The Deputy Associate Administrator chairs the Mission Support Council. The Deputy Associate Administrator also performs the duties and exercises the powers delegated by the Associate Administrator and acts for the Associate Administrator in the absence of the Associate Administrator.

Melanie Saunders is NASA's Deputy Associate Administrator, assisting the NASA Administrator and senior managers in implementing all aspects of the Agency's functions, policy, and integration of programs. She chairs the NASA Mission Support Council (MSC), which serves as the Agency's senior decision-making body regarding the integrated Agency mission support portfolio.

Melanie Saunders

Saunders had been the acting Deputy Director of NASA's Johnson Space Center in Houston from February to June 2018 and the Associate Director since 2009, managing one of NASA's largest installations, with nearly 11,000 civil service and contractor employees and an annual budget of approximately $5 billion. She oversaw a broad range of human space flight activities.

Extended bio: *https://www.nasa.gov/about/highlights/saunders_bio.html*

Associate Administrator for Strategy and Plans

The Associate Administrator for Strategy and Plans directs the Office of Strategic Engagement and Assessments. The Associate Administrator for Strategy and Plans is responsible for coordinating strategy implementation and policy integration activities in support of the Administrator and for policy integration.

Tom Cremins

Tom Cremins became the Associate Administrator for Strategy and Plans in November 2015 and served as the initial acting Chief of Staff after the 2016 presidential transition. He had served as senior advisor to the Administrator for strategy and policy implementation since April 2014. Before that, he worked in a range of critical and leading-edge governmental and executive assignments, including Deputy AA in Exploration and AA for Space Operations Directorate, overseeing the health and vitality of the human space flight related Centers. For over a decade he led negotiations and interactions with Russia and NASA's other major human space flight partners. Between September 2008 and December 2010, he served as the Director of the Studies and Analysis Division in the NASA Administrator's office. In this capacity, he oversaw Agency-wide strategic assessments, analysis, and studies on the breadth of NASA's programs, institutions, and external relationships.

Extended bio: *https://www.nasa.gov/content/thomas-e-cremins-senior-advisor-to-the-administrator-for-strategy-and-policy-implementation/*

Chief Scientist

The Chief Scientist serves as principal advisor to the NASA Administrator and other senior officials on Agency science programs, strategic planning, and the evaluation of related investments. The Office of the Chief Scientist (OCS) represents all of the scientific endeavors in the Agency, ensuring that they are aligned with and fulfill the administration's science objectives. The OCS advocates for NASA science in the context of broader Government science agendas and works closely with the White House Office of Science and Technology Policy and the Office of Management and Budget. OCS also coordinates with representatives of the NASA Mission Directorates, Field Centers, and advisory committees on the content and objectives of the Agency's science, research, and exploration portfolio. The Chief Scientist represents the Agency's strategic science objectives and accomplishments to the national and international science community, including other Government agencies, scientific organizations, industry, academia, and the public.

Jim Green

Prior to his appointment in 2018 as NASA's Chief Scientist, Dr. Jim Green was the Director of the Planetary Science Division at NASA Headquarters. Under his leadership, several missions have been successfully executed, including the New Horizons spacecraft flyby of Pluto; the MErcury Surface, Space ENvironment, GEochemistry and Ranging (MESSENGER) spacecraft to Mercury; the Juno spacecraft to Jupiter; the Grail spacecraft to the Moon; the Dawn spacecraft to Vesta and Ceres; and the landing of the Curiosity rover on Mars, just to name a few.

Extended bio: *https://www.nasa.gov/offices/ocs/chief-scientist_bio*

Chief Technologist

The Chief Technologist at NASA is the Administrator's principal advisor and advocate on matters concerning Agency-wide technology policy and programs. The Office of the Chief Technologist (OCT) provides the strategy and leadership that integrate NASA's technology development and open innovation activities. The office performs an Agency-level technology coordination role, coordinating with the NASA Mission Directorates and Field Centers to align the Agency's technology investments to meet mission requirements while filling gaps, anticipating future needs, and minimizing duplication of effort.

Douglas Terrier is the Chief Technologist at NASA Headquarters, serving as the senior leader of the office. In this role, Terrier is the Agency's principal advisor and advocate on NASA technology policy and programs, helping plot the strategic direction of the Agency's space technology program. Prior to his current position, Terrier worked at NASA's Johnson Space Center in Houston as the Center's Chief Technologist, serving as the principal advisor to the Center Director for technology, as well as the Center point of contact for the Agency Chief Technologist and the Space Technology Mission Directorate.

Douglas Terrier

Extended bio: *https://www.nasa.gov/offices/oct/douglas-terrier-chief-technologist*

Key Agency Initiatives

The leadership of NASA's 13th Administrator, Jim Bridenstine, and Deputy Administrator Jim Morhard has provided an Agency-level focus on the Artemis program to enable a new era of lunar exploration. The A-suite efforts involve engaging with stakeholders, securing resources, developing commercial opportunities, growing international partnerships, and enabling rapid technology development for NASA's Moon-to-Mars campaign. At the same time, the leadership team maintains a balanced portfolio between exploration interests and other Agency missions and activities.

To enable effective messaging, the A-Suite revitalized strategic communications by aligning Agency component interests—communications, legislative affairs, and education—with the Chief of Staff. It has led to greater linkage between NASA's mission activities and content with Agency stakeholder efforts. This increased coordination has resulted in numerous hosted events at NASA and partner facilities with international and congressional leadership, astronauts, scientists, engineers, and students.

A vital piece of NASA's success comes from its partnerships, particularly international. The A-suite has prioritized the development and maintenance of these strategic partnerships by developing the Artemis Accords, codifying international partner ground rules for the Artemis program, and solidifying international partner contributions to the Gateway. In addition, senior leadership has emphasized inter-agency relations, particularly with the Department of Energy, to enable mutual interests in exploration.

Finally, through the budget process, the A-suite has encouraged Mission Directorates (MDs) and Centers to pursue Artemis while maintaining an overall balanced portfolio in other scientific, technological, and aeronautics areas.

Beyond the high-profile efforts focused on robotic and human exploration, NASA senior leadership have continued to pursue overall Agency initiatives to increase the efficiency and effectiveness of NASA's operating model. Key initiatives include the following:

Program Performance Improvement

Improving program performance—in terms of cost, schedule, and technical parameters—is a signature focus for the current NASA leadership. Current efforts include a reevaluation of how the Agency conducts its monthly Baseline Performance Review (BPR). This bottom-up review has been augmented to include a greater emphasis on metrics, evaluating performance against the baseline, and

the inclusion of Earned Value Management data, as well as reporting COVID-19 impacts across NASA's five Mission Directorates. In addition, new BPR reporting guidelines were rolled out in February 2019 to ensure consistency across all assessments and to better focus those analyses on goals, commitments, and program risks. These efforts have in turn enhanced the quality of NASA's Strategic Review, an annual evaluation that the Agency utilizes to gauge progress made against its strategic direction, with outputs provided to the Office of Management and Budget (OMB) as legislatively mandated.

In addition, NASA leadership has undertaken several program and project management initiatives in light of recent challenges in cost and schedule growth experienced by several of the Agency's highest-profile missions. In December 2018, NASA developed a new Corrective Action Plan, with an update in August 2020, to address concerns highlighted in the Government Accountability Office (GAO) High Risk Report. These comprised 13 separate initiatives, 6 of which have already been completed. These initiatives included the expansion of the Agency's Joint Cost and Schedule Confidence Level requirements to improve cost performance, an increased emphasis on performance/leading indicators, and the establishment of a schedule repository to enable future missions to leverage past successes. Finally, NASA's Program Management Improvement Officer (PMIO) was designated to lead all program management integration activities—a single focal point in the Agency to facilitate the communication, coordination, stewardship, and synergy necessary to promote the overall enhancement of program management activities across NASA.

Strategic Acquisition

In 2018, NASA leadership formally established the Acquisition Strategy Council (ASC) as a forum to approve acquisition approaches for large, high-profile programs as recommended by the sponsoring Mission Directorate. Under the auspices of the ASC, the Agency conducts Acquisition Strategy Meetings (ASMs), a decision-making opportunity for senior management to debate and approve program and project acquisition strategies, especially the "make-buy-partner" elements. These elements have significant and long-term impacts on the Agency's workforce, its needed size and core capabilities, the Center roles and work assignments, the potential external partnerships (international, interagency, and industrial), and the overall acquisition risk. Over the past 2 years, the ASC has deliberated acquisition strategies for the Mars Sample Return mission, the lunar Gateway, the Human Landing System, an enterprise suite of exploration elements, and Commercial low-Earth orbit (LEO) opportunities. In addition, the ASC evaluates mission needs and Agency workforce capacity through an annual Agency Strategic Implementation Planning (ASIP) meeting. It subsequently recommends results as high-level

guidance to the Executive Council (EC) to inform the formulation of the budget Strategic Programming Guidance. The ASC may decide or provide guidance on significant additions or changes to Agency acquisition policies under the scope of acquisition defined in NASA Policy Directive (NPD) 1000.5C.

Strategic Workforce Planning

To create a workforce that is ideally shaped to perform NASA's mission today, tomorrow, and in the future, NASA's Strategic Workforce Planning is committed to a more agile, strategically shaped workforce that is driven by work requirements. Toward that end, these changes, which have been implemented, include 1) an acquisition strategy that provides guidance as to what work should be assigned to and performed by each of NASA's Centers; 2) a targeted reduction in the number of *permanent* full-time-equivalent (FTE) civil servants, drawing down by at least 10 percent over the next 5 years; 3) encouragement of the Centers to consider non-permanent workforce options, such as hiring *time-limited* civil servants, to meet mission requirements in excess of their permanent FTE targets (e.g., selected staff is brought on board to work on a project, and they depart when that project is completed); 4) elimination of the philosophy of a "supply-based" workforce, where the Agency finds work for everyone on board, thus requiring fixed allocations of the number of onboard staff assigned to each of NASA's Mission Directorates; 5) transition to a "demand-based" philosophy and determination of the workforce size and composition, where MDs and Centers collectively forecast how many people are needed to accomplish NASA's projects; and 6) promotion of hiring flexibilities (such as direct hiring of interns, on-the-spot offers, and more aggressive use of NASA Excepted appointments for senior hires) and skill improvement (through increased hands-on experiences, rotations with industry, advanced degree support, and easier staff mobility between Centers).

Enterprise Protection Program

Formed in 2016, the Enterprise Protection Program (EPP) integrates work across NASA to identify and mitigate malicious threats to spacecraft, mission ground systems, and critical facility control systems. The EPP Board, chaired by the NASA Associate Administrator, meets in classified and unclassified formats to decide on policies and actions to protect Agency systems. EPP has coordinated the implementation of new protection policies and procedures, including cybersecurity, working closely with cognizant organizations. Incidents of purposeful interference against NASA spacecraft led to new policy and technical standards for space protection against a range of current and potential malicious threats, including cyber threats to command links and positioning, navigation, and timing systems. A recent unfettered intrusion into a critical NASA space communications system, combined with increasing cybersecurity threats to space systems, led to benchmarking other

space agencies and mitigation recommendations. These recommendations are practical ways to improve NASA mission cybersecurity culture and risk posture by instilling cybersecurity risk management into all aspects of our mission work to support mission success, safety, and security. EPP also works with the U.S. Space Command, including the National Space Defense Center (NSDC) for defense against threats to space systems. NASA engagement in this manner develops interagency procedures and awareness of systems and organizational structure. NASA supports NSDC exercises and collaborates on end-of-mission vulnerability testing of NASA space systems.

Digital Transformation

Digital Transformation (DT) is a priority for NASA leadership and an imperative for the Agency's future. NASA missions are increasingly complex on shorter timelines; the NASA partner community is growing while the global civil aerospace market is transforming; and public expectations for efficiency and effectiveness are leading to new business processes that are outpacing legacy systems. Additionally, top talent hires are expecting to work in a digitally enabled and agile workspace. These challenges are affecting every NASA organization and Center, and collectively they require DT solutions to increase decision velocity—powered by a "one data" culture, model-based analytics, seamless collaboration, and a digitally savvy workforce. In response, NASA recently established the Agency Business Innovation Office to provide the vision, leadership, and central coordination of enterprise-level DT solutions. This office will establish an integrated digital architecture and supporting policies, coordinate distributed investments to limit duplication and maximize leveraging across the enterprise, assess future digital disruptions that have the potential to transform NASA practices, and facilitate partnerships to enable NASA to capitalize on external advances. These efforts will be organized around NASA-approved DT roadmaps and implementation plans for six thrust areas: Data, Collaboration, Culture and Workforce, Model-Based Everything, Artificial Intelligence/Machine Learning, and Process Transformation.

Unity Campaign and Inclusion

In September 2019, NASA launched the Unity Campaign, an effort to empower NASA's workforce and organizations to more effectively work together and accomplish NASA's missions. The Unity Campaign has two objectives: 1) Transcendence—going from a focus on insular organizational and individual goals/interests/identities to a focus on common and superordinate Agency goals and priorities; and 2) Connection—providing opportunities for the NASA workforce to connect with each other, interact, and increase their familiarity with each other as teammates and human beings. Agency-wide implementation plans are in development and aimed at strengthening teamwork and collaboration through

actionable steps. Such steps will be based on best practices worthy of scaling in thematic areas such as communications, use of data, accountability and recognition, and succession management. As the Unity Campaign emerged, NASA leadership recognized the need to add a fifth core value, Inclusion, to NASA's current set of values: Safety, Teamwork, Integrity, and Excellence. This new value is substantiated in NASA policy, NPD 1000.0C, as follows:

"Inclusion—NASA is committed to a culture of diversity, inclusion, and equity, where all employees feel welcome, respected, and engaged. To achieve the greatest mission success, NASA embraces hiring, developing, and growing a diverse and inclusive workforce in a positive and safe work environment where individuals can be authentic. This value enables NASA to attract the best talent, grow the capabilities of the entire workforce, and empower everyone to fully contribute."

1.2 Workforce

NASA is proud to have been named by the Partnership for Public Service as the "Best Place to Work" in the Federal Government (among large agencies) since 2012. This honor reflects NASA's strong mission, project focus, and annual results from the Federal Employee Viewpoint Survey (FEVS). NASA has developed a positive work culture with a high level of employee engagement through deliberate, proactive initiatives over time. This accomplishment is based on NASA's Workforce Culture Strategy, which flows through all our workforce initiatives. Key focus areas include connecting employees, building model supervisors, and recognizing and rewarding innovative performance. Through these investments, NASA employees are heavily engaged in their work and consistently cite shared values, shared commitment to the mission, and loyalty to the Agency as reasons for engagement.

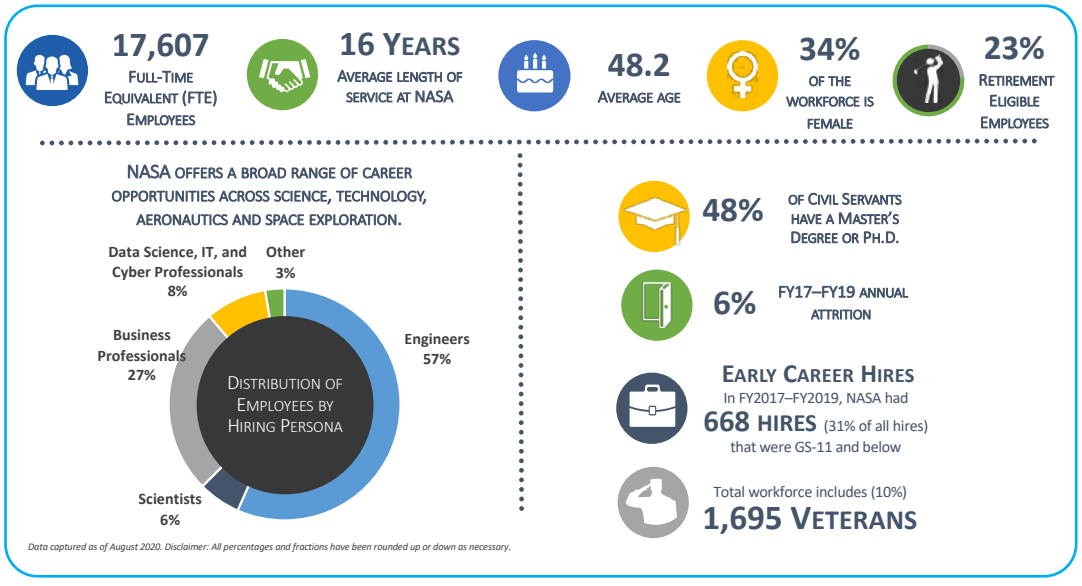
While NASA is committed to creating an environment where employees feel engaged and motivated to create innovative ideas, the Agency is also dedicated to ensuring that it has the best and brightest minds from across the United States. We are actively exploring creative ways to recruit the next generation of NASA employees, particularly in competitive science, technology, engineering, and mathematics (STEM) fields, because nearly one-quarter of the workforce is retirement-eligible.

The graphics on the following page provide additional insights and statistics on the current NASA workforce.

NASA Civil Service Workforce by the Numbers

	Civil Servant Head Count	Average Age	Average Years of NASA Service	Percent Retirement Eligible
Ames Research Center	1,289	49.8	15.0	28.63%
Armstrong Flight Research Center	534	48.1	12.9	21.72%
Glenn Research Center	1,572	47.2	17.2	27.74%
Goddard Space Flight Center	3,281	48.1	15.5	22.19%
Johnson Space Center	3,108	46.9	16.5	20.79%
Kennedy Space Center	2,080	46.5	14.5	18.27%
Langley Research Center	1,819	49.2	18.0	27.76%
Marshall Space Flight Center	2,394	48.0	17.3	24.69%
Stennis Space Center	280	48.3	13.0	16.43%
Headquarters	1,198	51.2	15.3	25.88%
NASA Shared Services Center	168	48.8	10.2	12.50%
Office of Inspector General	178	47.0	10.3	17.42%
Centers and NSSC	17,901	48.1	15.9	23.35%

NASA Civil Service Workforce At-a-Glance

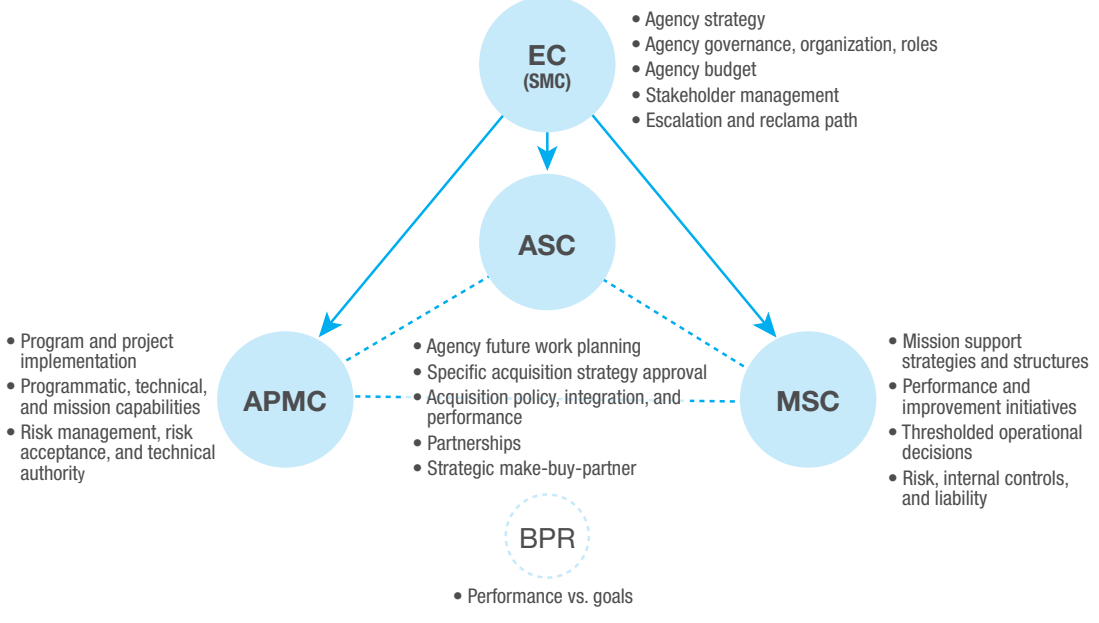


1.3 Agency Governance and Governing Councils

Throughout its history, NASA has maintained a number of chartered, formal governing councils for the purposes of making informed, documented decisions on key strategic, programmatic, and institutional questions. The configuration of NASA's strategic management system, including its governance framework, is documented in NASA Policy Directive (NPD) 1000.0C, the "root" of the NASA Directive and Regulation tree, with council charters documented in NPD 1000.3E. Governance councils are managed by the Office of Agency Council Staff (OACS), which reports to the NASA Chief of Staff.

The current governance structure core implementation relies upon an Executive Council (EC) chaired by the NASA Administrator, a virtual Senior Management Council (SMC) used to collect Agency-wide inputs on key issues, an Agency Program Management Council (APMC) used to make key program implementation decisions, and a Mission Support Council (MSC) used to decide key Institutional issues. The Executive Council makes decisions on questions of top-level NASA strategy, annual budget development, organization, and operating model. Technical capability perspectives inform both APMC and MSC discussions and decisions. In addition, the Acquisition Strategy Council (ASC) approves acquisition approaches for large, high-profile programs as recommended by the sponsoring Mission Directorate. The ASC provides a forum for make-buy-partnership decisions as well as capability management issues.

The primary councils are supported by special-purpose councils and reviews. The monthly Baseline Performance Review (BPR) implements routine, integrated performance management of all major Agency mission and institutional programs and projects. The functional relationships between NASA's governing councils are highlighted in the accompanying figure.



1.4 Summary of Space Policy Directives

(as of September 2020)

Space Policy Directive 1
Reinvigorating America's Human Space Exploration Program

https://www.whitehouse.gov/presidential-actions/presidential-memorandum-reinvigorating-americas-human-space-exploration-program/

- This directive was signed by the President on December 11, 2017.
- The directive amended the 2010 National Space Policy and directed NASA with regard to returning humans to the Moon: "Lead an innovative and sustainable program of exploration with commercial and international partners to enable human expansion across the solar system and to bring back to Earth new knowledge and opportunities. Beginning with missions beyond low-Earth orbit, the United States will lead the return of humans to the Moon for long-term exploration and utilization, followed by human missions to Mars and other destinations."

Space Policy Directive 2
Streamlining Regulations on Commercial Use of Space

https://www.whitehouse.gov/presidential-actions/space-policy-directive-2-streamlining-regulations-commercial-use-space/

- This directive was signed by the President on May 24, 2018.
- The directive outlines actions related to streamlining national regulations for the commercial use of space.
- The Department of Transportation will review regulations governing the licensing of commercial space launch and reentry.
- The Department of Commerce will review Commercial Remote Sensing regulations (updated rule issued in May 2020) and reorganize Commerce to support commercial space flight activities (legislative proposal submitted to Congress in October 2018, "SPACE Act").
- The Department of Commerce and the Federal Communications Commission will review Federal Government activities related to radio frequency spectrum (October 2018, Presidential Memorandum on Developing a Sustainable Spectrum Strategy for America).

- The Executive Secretary of the National Space Council (NSpC) will review export licensing regulations affecting commercial space flight activity (in March 2019, NSpC issued four recommendations [11 actions]) to facilitate the availability of space for broader commercial use.
- While the implementation of the recommendations falls to State and Commerce as the regulatory authorities, NASA would benefit from an aligning of space-related export controls to the regulatory model similar to civil and commercial aircraft, where only those technologies unique to military use are subject to the more rigorous regulations.

Space Policy Directive 3
National Space Traffic Management Policy

https://www.whitehouse.gov/presidential-actions/space-policy-directive-3-national-space-traffic-management-policy/

- This directive was signed by the President on June 18, 2018.
- The directive established first-ever national policy for Space Traffic Management (STM).
- Policy is public; the Implementation Plan is for official use only and has nine goals with a myriad of key tasks.
- The United States will continue basic space situational awareness data and STM services free of direct user fees.
- The Department of Commerce is the lead for space safety data and services available to the public, while the Department of Defense (DOD) maintains the authoritative catalog of space objects.
- NASA will continue to further science and technology related to space situational awareness (Goal 1) and update the U.S. Orbital Debris Mitigation Standard Practices (completed in November 2019) to address SmallSats and large constellations (Goal 2, key task 1).

Space Policy Directive 4
Establishment of the United States Space Force

https://www.whitehouse.gov/presidential-actions/text-space-policy-directive-4-establishment-united-states-space-force/

- This directive was signed by the President on February 19, 2019.
- The Secretary of Defense will develop a legislative proposal establishing the United States Space Force (USSF) as the sixth branch of the Armed Forces, initially within the Department of the Air Force.
- Interagency review by the NSpC and NSC may produce recommended changes to space operational authorities in order to address the threats posed by foreign adversaries.
- DOD and the Intelligence Community will create collaborative mechanisms to improve space capabilities and operations.
- USSF does not have a direct role in the civil exploration and development of space per se. However, activities such as space transportation and logistics, power, communication, navigation, and space domain awareness are of dual-use value to all space sectors—civil, national security, and commercial.

Space Policy Directive 5 Cybersecurity Principles for Space Systems

https://www.whitehouse.gov/presidential-actions/memorandum-space-policy-directive-5-cybersecurity-principles-space-systems/

- This directive was signed by the President on September 4, 2020.
- The directive establishes key cybersecurity principles to guide and serve as the foundation for the U.S. approach to the cyber protection of space systems. It provides a whole-of-government framework to safeguard space assets and critical infrastructure.
- Allows space systems operators to make appropriate risk trades when implementing cybersecurity requirements specific to their system.
- In keeping with Space Policy Directive 5 guidance as well as the Federal Information Systems Act requirement, NASA leverages a risk-based, cybersecurity-informed approach to our mission systems' development and operations. NASA implements the cybersecurity risk management framework and associated guidance on security controls provided by the National Institute of Standards and Technology. Further, NASA has issued a new engineering technical standard for the protection of space systems that supports the intent of Space Policy Directive 5.

1.5 Upcoming NASA Milestones and External Events

Current as of October 31, 2020

DATE	EVENT
NOVEMBER 2020	
2	20th anniversary of continuous human presence on the ISS
10	European Space Agency (ESA)–European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)–National Oceanic and Atmospheric Administration (NOAA) Sentinel 6–Michael Freilich launch (Vandenberg)
NET 14	Crew-1 (SpaceX)
Mid/Late Nov.	Canadian Space Agency Gateway MOU signing
24	Launch of China's Chang'e-5 lunar sample return mission
30	Russian MLM launch to ISS
Late Nov./ Early Dec.	SpaceX CRS-21 delivers first commercial airlock to space (NanoRacks)
DECEMBER 2020	
1	X-59 Quiet Supersonic Transport (QueSST) major structures come together
5	JAXA's Hayabusa2 Sample Return Capsule returns to Earth
11	FY 2021 Continuing Resolution expires
Early/Mid Dec.	JAXA/Japan Gateway MOU signing
Late Dec./ Early Jan.	Green Run "Hot Fire" test
Late Dec./ Early Jan.	Artemis I Core Stage travels from Stennis Space Center (SSC) to Kennedy Space Center (KSC)
JANUARY 2021	
January	Ilan Ramon International Space Conference, Israel
January	Laser Communications Relay Demonstration launch
January	Orbital Flight Test-2 (Boeing)
January	Second Blue Origin suborbital flight test of lunar landing tech
Jan. 28–Feb. 4	43rd COSPAR Scientific Assembly (U.N.)
FEBRUARY 2021	
1	Northrop Grumman 15th ISS resupply mission launch
1–12	Scientific and Technical Subcommittee meeting of COPUOS (U.N.)
11–24	China's Tianwen-1 Mars orbit insertion
15	UAE's Emirates Mars Mission, Hope, Mars orbit insertion
18	Mars 2020 Perseverance landing

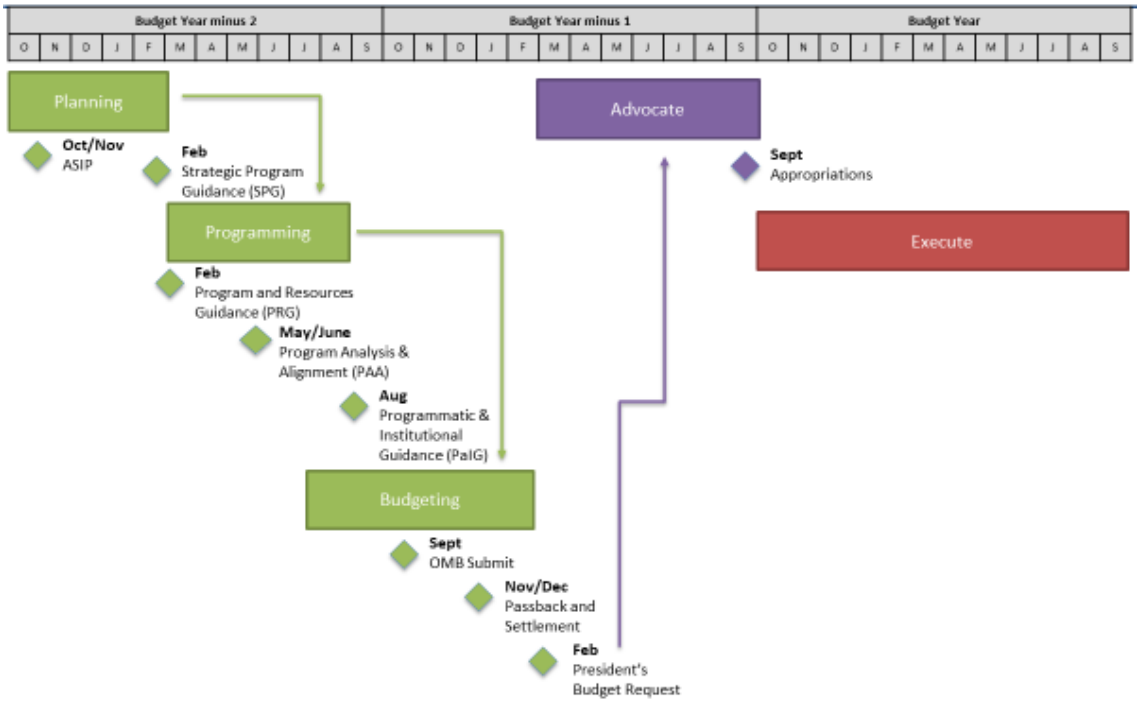
DATE	EVENT
FEBRUARY 2021 (CONTINUED)	
February	FY 2022 President's Budget Request rollout
February	Selection of company/companies developing Artemis III Human Landing Systems
February	U.N. COPUOS Legal Subcommittee meeting
MARCH 2021	
1–15	X-57 first flight over Armstrong Flight Research Center
March	SpaceX Crew-2
March	Orion Recovery Test
March	Launch of Tianhe-1, China's core module to its space station
APRIL 2021	
5	Boeing Crew Flight Test (CFT) to the ISS
10	Soyuz Crew launch to ISS
23	China's Tianwen-1 landing on Mars
April	Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment (CAPSTONE) launch
April/May	Ingenuity helicopter flight test on Mars
MAY 2021	
May	Splashdown and return of SpaceX Crew-1 mission
JUNE 2021	
21–27	International Paris Air Show
June	Meeting of the full COPUOS Committee
OTHER NOTABLE ITEMS PLANNED FOR 2021	
July	Double Asteroid Redirection Test (DART) launch
August	SpaceX Crew-3
August 22–26	Space Symposium
September	Landsat 9 launch
September	Astrobotic's first Commercial Lunar Payload Services flight and landing on the Moon
September	Sierra Nevada Corp first mission to ISS
September	SpaceX Crew-2 splashdown
October	LUCY launch
October	James Webb Space Telescope (JWST) launch
November	Artemis I launch
By end of Dec.	New astronaut class announcement

2 NASA BUDGET

2.1 NASA Budget Overview

NASA's budget formulation is one of the Agency's central processes. The development of NASA's budget plan and the application of budget authority to achieve the Agency's objectives are carried out through a four-stage Planning, Programming, Budgeting, and Execution process, referred to as PPBE. The PPBE process integrates and formalizes what will and will not be done by the Agency for a given time period. Requirements for budget formulation are included in NASA Procedural Requirements (NPR) 9420.1A.

PPBE Cycle



Planning: The continuous process of assessment and adjustment of NASA's goals and objectives.

Programming: A bottom-up process to gather data and raise issues regarding the resources necessary to accomplish the mission, with prioritization decisions.

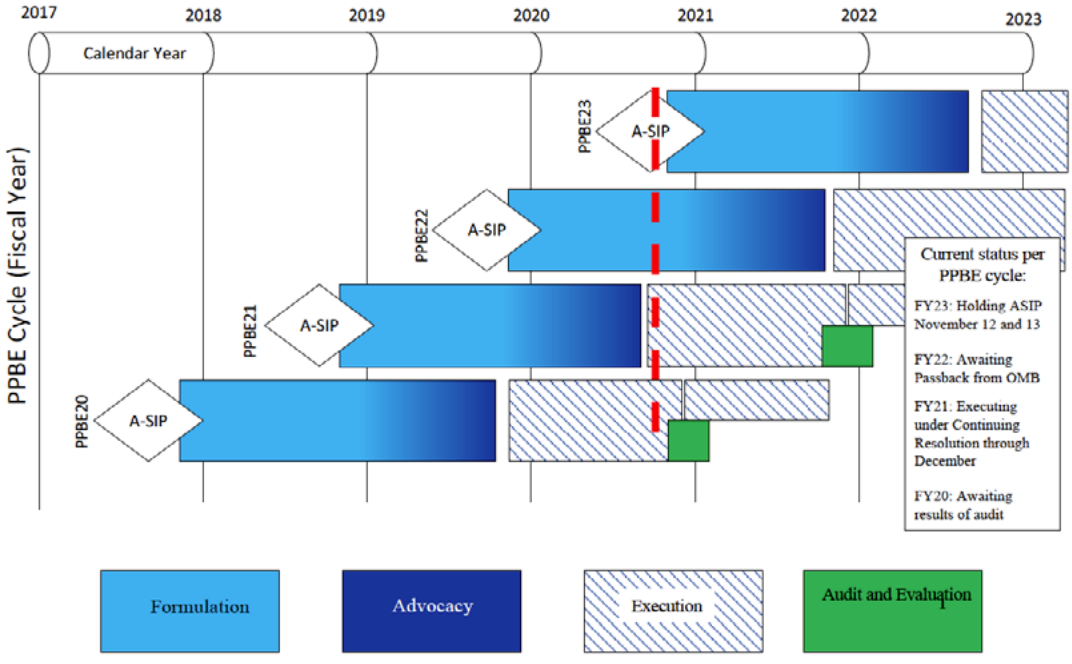
Budgeting: The process of aligning resources against priorities and presenting Agency decisions to the White House Office of Management and Budget (OMB) in the OMB Submit. OMB assesses the submission in the context of overall Administration policy and the requirements of other agencies and then responds to NASA (in a document called a "passback") with OMB's adjustments to the Agency's submission. After a period of negotiations in which NASA and OMB come to agreement on a final administration position, NASA publishes its Agency Congressional Justification and advocates on behalf of the President's Budget Request.

Execution: The process of spending, recording, monitoring, and controlling budget authority to conduct NASA's work once funds have been appropriated. This includes establishing, adjusting, and gaining the approval of the Appropriations Committees on the Agency's operating plans.

Current Budget Status

NASA typically deals with four budget cycles at any one time. The figure below illustrates the current status of NASA's PPBE cycle for Fiscal Year (FY) 20–23, demonstrating how multiple budgets are in play at any given time, at varying levels of maturity in the PPBE process.

Budget Cycles in Play: FY20–23



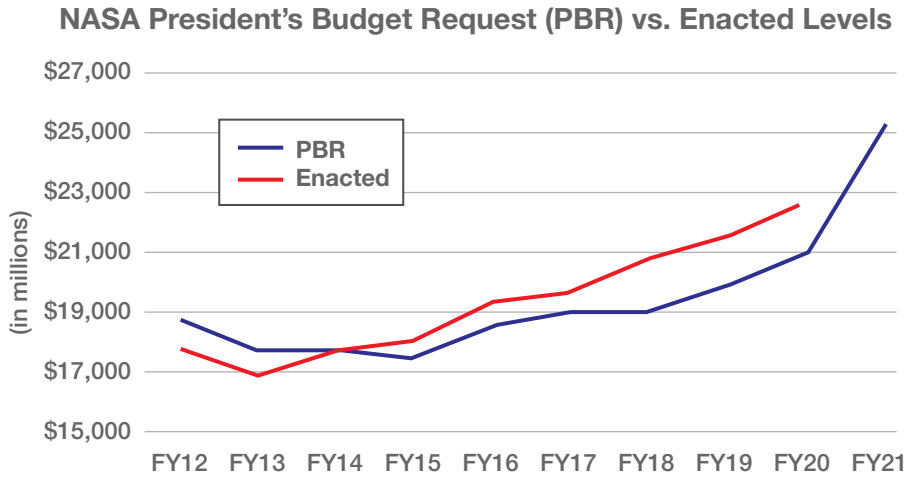
Recent NASA Budget Request

NASA's Congressional Justification for Fiscal Year 2021, part of the President's Budget Request to Congress, may be found at *https://www.nasa.gov/news/budget/index.html*. The account level details are below.

(Amounts in millions of dollars)

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Deep Space Exploration Systems	$8,547.3	$10,299.7	$11,605.1	$10,887.7	$8,962.2
Exploration Technology	$1,579.1	$1,765.4	$1,906.2	$1,954.2	$2,038.2
LEO and Spaceflight Ops.	$4,147.3	$4,147.3	$4,147.3	$4,147.3	$4,147.3
Science	$6,378.6	$6,553.5	$6,575.7	$6,705.2	$6,766.9
Aeronautics	$703.6	$703.6	$703.6	$703.6	$703.6
STEM Engagement	$0.0	$7.3	$7.5	$7.7	$7.9
Safety, Security, and Mission Services	$3,115.6	$3,115.6	$3,115.6	$3,115.6	$3,115.6
Construction and Environmental Compliance and Restoration	$530.3	$530.3	$530.3	$530.3	$530.3
Inspector General	$44.2	$44.2	$44.2	$44.2	$44.2
NASA Total	$25,046.0	$27,166.9	$28,635.5	$28,095.8	$26,316.2

A summary of recent annual appropriations outcomes for NASA, compared with the President's request level, is provided in the figure below:



2.2 Office of the Chief Financial Officer Transition Milestones

1. Budget
   a. PPBE22 Agency Budget Submission to OMB **Due Date: September 14, 2020**
   b. PPBE22 Passback **Due Date: Approximately November 30, 2020**
   c. PPBE23 Executive Council meeting to establish budget strategy for the Strategic Planning Guidance (SPG) **Due Date: December 11, 2020**
2. Performance Reporting
   a. Interim Learning Agenda **Due Date: September 14, 2020**
   b. Draft FY 2021–22 Annual Performance Plan **Due Date: September 14, 2020**
   c. Update 2021–22 Annual Performance Plan after passback for publishing **Due Date: February 1, 2021 (with Congressional Justification)**
3. Strategic Plan
   a. 2022 Strategic Planning kicked off at Executive Council **Due Date: December 11, 2020**
4. Financial System FY20 Close as required under Bureau of Fiscal Services—Treasury **Due Date: September 30, 2020**
5. Financial System FY21 Opening as required under Bureau of Fiscal Services—Treasury **Due Date: October 1, 2020**
6. Agency Financial Report as required by Chief Financial Officers Act of 1990 with guidance promulgated by Office of Management and Budget circular A-136 **Due Date: November 16, 2020**
   a. Mission Performance
   b. FY20 Financial Statement Audit (conducted by Office of Inspector General)
   c. Management Representation Letter
   d. Improper Payments Program
   e. Statement of Assurance required by Office of Management and Budget circular A-123
7. Data Accountability and Transparency—President's Management Agenda Priority Goal #2
   a. Robotics Process Automation **Due Date: August 31, 2020**
   b. Systems Enhancements—Category B Requirements as required under the CARES Act and OMB Memorandum M-20-21 **Due Date: September 30, 2020**

c. Financial Reporting—Data Act; USASpending.gov (*https://www.usaspending.gov/*) as promulgated with OMB Memorandum M-17-04 **Due Date: Quarterly Reporting and Certification**

   i. CARES Act—COVID-19 **Due Date: Monthly Reporting and Quarterly Certification**

d. Governmentwide Treasury Account Symbol Adjusted Trial Balance System (GTAS) as required under Bureau of Fiscal Services—Treasury **Due Date: October 16, 2020**

3 CONGRESSIONAL RELATIONS

NASA has been the beneficiary of broad, bipartisan congressional support since its establishment in 1958. NASA supporters in Congress are often part of delegations representing states in which NASA's nine Centers are located, while authorization and appropriations chairs and ranking members often assume roles of national leaders for investment in NASA space and aeronautics. There are four primary congressional committees that oversee NASA—the House Committee on Science, Space, and Technology; the Senate Committee on Commerce, Science, and Transportation; and the House and Senate Committees on Appropriations—which are summarized in the following subsections.

3.1 Appropriations

The House and Senate Committees on Appropriations are responsible for writing annual bills that allocate discretionary Treasury funds for operations and activities of Federal agencies, and under Article 1 of the Constitution, appropriations measures are to originate in the House of Representatives. All discretionary programs in the Federal Government require an appropriation every year. The Committees on Appropriations work on regular appropriations bills that must be signed into law by October 1, the start of the fiscal year, to fund the operations of the Federal Government.

When appropriations bills are not passed by the start of the fiscal year, the Appropriations Committees of both chambers produce a Continuing Resolution (CR). A CR is legislation that prevents agencies from shutting down by keeping them running at the previous year's funding level. When Subcommittee bills do not individually proceed to enactment, omnibus appropriation bills that incorporate multiple Subcommittee bills may be enacted.

House Committee on Appropriations

More information: *https://appropriations.house.gov/*

The House Committee on Appropriations has broad responsibility for appropriating funds for executive branch departments/agencies and the legislative branch. The Rules of the U.S. House of Representatives define the Committee's jurisdiction as "appropriation of the revenue for the support of the Government" (and related

powers to rescind and transfer funds). The Committee's 12 Subcommittees are aligned with responsibility for specific departments and agencies. The House Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies (CJS) has jurisdiction over NASA.

House Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies—Jurisdiction

The House Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies provides funding for the Department of Commerce, the Department of Justice, the Office of Science and Technology Policy, NASA, the National Science Foundation, and several related commissions and agencies. The annual CJS Appropriations Bill is one of the larger domestic appropriations bills, totaling $73 billion in FY 2020.

The CJS Subcommittee reviews the President's budget request for each department/agency and hears department/agency officials' testimony. Typically, the Subcommittee holds one hearing per year on the respective department/agency budget request, and Subcommittee staff engage in detailed review of the request through multiple briefings by department/agency officials. The Subcommittee drafts annual appropriations bills that include funding for each department/agency under its jurisdiction. When an annual appropriations bill has been enacted, departments/agencies are required to submit "spend plans," pursuant to statutory direction, to the House and Senate Committees on Appropriations, to reflect the manner in which the department/agency is executing the appropriation, including proposed reprogrammings, which require Committee concurrence. As necessary, the Subcommittee drafts supplemental appropriations bills for emergency expenses during a fiscal year.

Senate Committee on Appropriations

More information: *https://www.appropriations.senate.gov/*

The Senate Committee on Appropriations, like its House counterpart, is responsible for writing annual bills that allocate Treasury funds for operations and activities of Federal agencies, and it has 12 Subcommittees, aligned with the House, with responsibility for executive branch agencies and the legislative branch. The Senate Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies has jurisdiction over NASA.

Senate Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies—Jurisdiction

The Senate Appropriations CJS Subcommittee has a jurisdiction and charter that mirrors that of the House Appropriations CJS Subcommittee. The CJS Subcommittee reviews the President's budget request for each department/agency and hears department/agency officials' testimony. Typically, the Subcommittee holds one hearing per year on the respective department/agency budget request, and Subcommittee staff engage in detailed review of the request through multiple briefings by department/agency officials. The Subcommittee drafts annual appropriations bills that include funding for each department/agency under its jurisdiction. When an annual appropriations bill has been enacted, departments/agencies are required to submit "spend plans," pursuant to statutory direction, to the House and Senate Committees on Appropriations, to reflect the manner in which the department/agency is executing the appropriation, including proposed reprogrammings, which require Committee concurrence. As necessary, the Subcommittee drafts supplemental appropriations bills for emergency expenses during a fiscal year.

3.2 Authorization

The Authorization Committees set policy for agencies and execute congressional oversight of agency programs and plans. Authorization bills establish, continue, or modify Federal programs and are intended to precede the appropriations process. Authorization bills also frequently update congressional reporting requirements.

While NASA authorization legislation is not typically enacted on an annual basis, such authorization legislation sets out policy that reflects broad consensus, most recently with the NASA Authorization Act of 2017 (*https://www.congress.gov/115/plaws/publ10/PLAW-115publ10.pdf*), establishing guidelines for human space exploration, science, aeronautics, and technology.

Senate Committee on Commerce, Science, and Transportation

More information: *https://www.commerce.senate.gov/*

The Committee is composed of six Subcommittees, which together oversee the large range of issues under its jurisdiction. These issues include communications, highways, aviation, rail, shipping, transportation security, the Merchant Marine, the U.S. Coast Guard (USCG), oceans, fisheries, climate change, disasters, science, space, interstate commerce, tourism, consumer issues, economic development,

technology, competitiveness, product safety, and insurance. The Committee oversees NASA, the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and the National Institute of Standards and Technology (NIST) within the Department of Commerce, as well as the U.S. Coast Guard, and considers and confirms presidential appointments.

Subcommittee on Aviation and Space

The Senate Subcommittee with oversight jurisdiction over NASA is the Subcommittee on Aviation and Space. The Subcommittee has jurisdiction over technology, engineering, astronautical, and aeronautical research and development (R&D); national and civil space policy; civil aviation research, development, and demonstration; and aviation safety and protection of consumers. The subcommittee also conducts oversight on the Federal Aviation Administration (FAA) and the civil aviation and civil space policy functions of the Department of Transportation, Department of Commerce, and National Space Council within the Executive Office of the President.

House Committee on Science, Space, and Technology

More information: *https://science.house.gov/*

The Committee has jurisdiction over most Federal, non-defense, scientific R&D, including programs at NASA, the Department of Energy, the Environmental Protection Agency, the National Science Foundation, the Federal Aviation Administration, the National Oceanic and Atmospheric Administration (including the National Weather Service), the Federal Emergency Management Agency, the U.S. Geological Survey, the National Space Council, and the White House Office of Science and Technology Policy. The Committee's strong interest in how Federal R&D sustains U.S. international competitiveness and economic health dates back to its creation in 1958. Initially centered on space exploration, its jurisdiction now includes civil aviation, energy (including commercial applications), the environment, scientific research, science scholarships, marine research, and standardization of weights and measures through the National Institute of Standards and Technology. The Committee has five Subcommittees.

Subcommittee on Space and Aeronautics

The House Subcommittee with oversight jurisdiction over NASA is the Subcommittee on Space and Aeronautics. The Subcommittee has legislative jurisdiction and general oversight and investigative authority on all matters relating to astronautical and aeronautical research and development, including national space policy; exploration of, access to, and use of space; sub-orbital access and

applications; NASA and its contractor- and government-operated labs; space commercialization; international space cooperation; the National Space Council; space applications, space communications, and related matters; Earth remote sensing policy; civil aviation and FAA research, development, and demonstration; and space law.

4 NASA MISSION DIRECTORATES

NASA is organized into four Mission Directorates (Aeronautics, Human Exploration and Operations, Science, and Space Technology) which oversee NASA's programs and projects, and the Mission Support Directorate, which provides institutional support to enable mission objectives. The following sections describe their purpose, organizational structure, and leadership.

4.1 Aeronautics Research Mission Directorate

Mission Statement

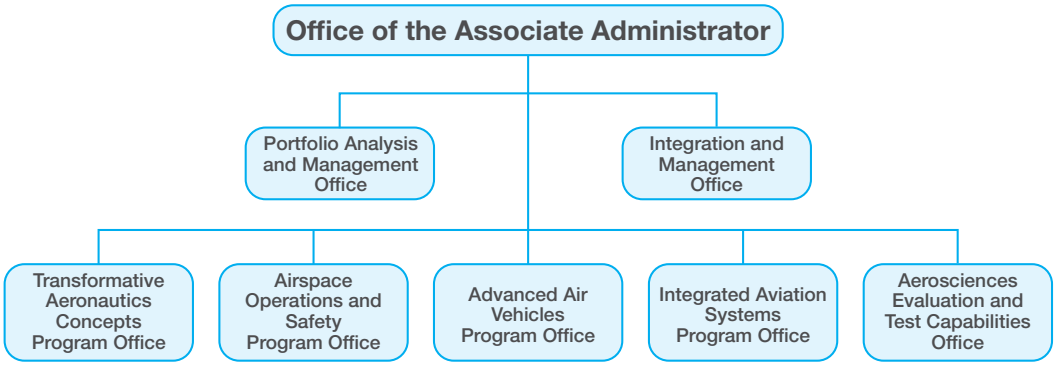
The Aeronautics Research Mission Directorate (ARMD) conducts research that generates concepts, tools, and technologies to enable advances in our Nation's future aircraft. ARMD programs facilitate a safer, more environmentally friendly, and efficient national air transportation system. In addition, NASA's aeronautics research serves a vital role in supporting NASA's human and robotic space exploration activities.

More information: *https://www.nasa.gov/aeroresearch*

Organizational Structure

The ARMD organizational chart shows the Headquarters structure, including portfolio elements designated as program offices as well as supporting functional offices.

Aeronautics Research Mission Directorate



October 2020

ARMD program descriptions are noted below:

Advanced Air Vehicles Program (AAVP): AAVP studies, evaluates, and develops technologies and capabilities for new aircraft systems and also explores far-future concepts that hold promise for revolutionary air-travel improvements. (*https://www.nasa.gov/aeroresearch/programs/aavp*)

Airspace Operations and Safety Program (AOSP): AOSP works with the Federal Aviation Administration, industry, and academic partners to conceive and develop Next Generation Air Transportation System (NextGen) technologies to further improve the safety of current and future aircraft. (*https://www.nasa.gov/aeroresearch/programs/aosp/description/*)

Integrated Aviation Systems Program (IASP): IASP conducts flight-oriented, system-level research and technology development to effectively mature and transition advanced aeronautic technologies into future air vehicles and operational systems. (*https://www.nasa.gov/aeroresearch/programs/iasp*)

Transformative Aeronautics Concepts Program (TACP): TACP solicits and encourages revolutionary concepts, creates the environment for researchers to experiment with new ideas, performs ground and small-scale flight tests, allows failures and learns from them, and drives rapid turnover into potential future concepts to enable aviation transformation. (*https://www.nasa.gov/aeroresearch/programs/tacp/description/*)

Aerosciences Evaluation and Test Capabilities Office: This project sets the strategic direction for NASA's versatile and comprehensive portfolio of ground-test aeronautics research capabilities, including subsonic, transonic, supersonic, and hypersonic wind tunnels and propulsion test facilities. (*https://www.nasa.gov/aeroresearch/programs/aavp/aetc/description/*)

ARMD Headquarters Leadership

Robert A. Pearce
Associate Administrator, Aeronautics Research Mission Directorate

Robert A. Pearce

Robert A. Pearce was named NASA's Associate Administrator for the Aeronautics Research Mission Directorate (ARMD) in December 2019. Pearce manages the Agency's aeronautics research portfolio and guides its strategic direction, including research in quiet supersonic flight over land, urban air mobility, autonomy, highly efficient advanced air vehicle concepts, electrified aircraft propulsion, advanced materials, airspace operations and safety, integration and flight demonstrations of aviation systems, and the nurturing and development of transformative concepts for aviation.

Pearce served as acting Associate Administrator from August 2019 until his appointment as Associate Administrator. Prior to that, he was ARMD's Deputy Associate Administrator for strategy, where he led aeronautics research mission strategic planning to guide the content, strategic progress, and relevance of ARMD's research portfolio; he also led the review and evaluation of ARMD's budget and approval process.

Extended bio: *https://www.nasa.gov/aeroresearch/robert-pearce-bio*

ARMD leadership team: *https://www.nasa.gov/aeroresearch/leadership*

4.2 Human Exploration and Operations Mission Directorate

Mission Statement

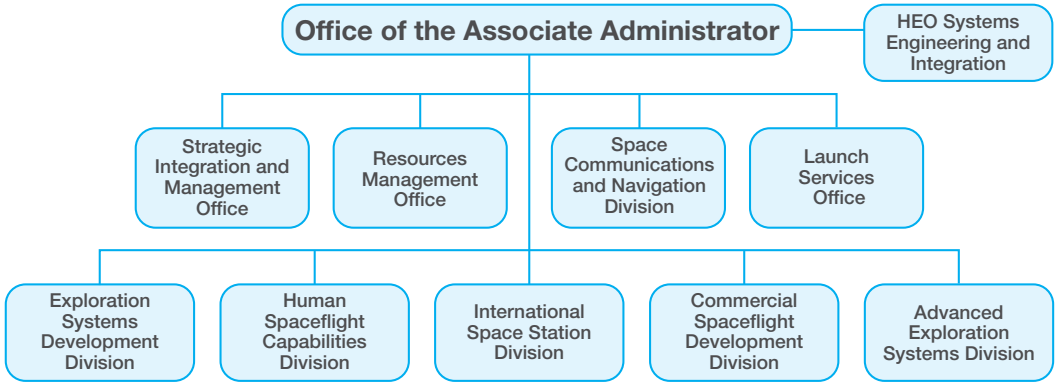
The Human Exploration and Operations Mission Directorate (HEOMD) is responsible for enabling human exploration of the solar system. HEOMD manages NASA crewed space operations in and beyond low-Earth orbit (LEO) and commercial launch services. As part of this responsibility, HEOMD develops, operates, and maintains exploration, communications, and space transportation systems and performs scientific research to enable sustained human exploration. In addition, HEOMD is responsible for managing the space transportation services for NASA or NASA-sponsored payloads that require orbital launch and for managing the Agency's space communications and navigation services supporting all NASA space systems.

More information: *https://www.nasa.gov/directorates/heo/index.html*

Organizational Structure

The HEOMD organizational chart shows the Headquarters structure, including portfolio elements designated as divisions as well as supporting functional offices.

Human Exploration and Operations Mission Directorate



October 2020

HEOMD division descriptions are noted below:

Exploration Systems Development (ESD): ESD builds the Agency's foundational human exploration capabilities: the crew vehicle (Orion); the next-generation heavy-lift launch vehicle, Space Launch System (SLS); and advanced exploration ground

systems to enable human exploration and operations to multiple deep space destinations extending beyond our Moon to Mars and across our solar system. (*https://www.nasa.gov/topics/moon-to-mars/getting-there*)

Human Spaceflight Capabilities: The Human Spaceflight Capabilities Division manages the functions of maintaining the health and safety of astronauts in training, during missions, and in post-flight recovery; oversees the quality of flight operations for crewmembers; and ensures the availability of rocket test stands across the Agency. (*https://www.nasa.gov/hrp* and *https://www.nasa.gov/directorates/heo/rpt/index.html)*

International Space Station (ISS): The ISS Division enables research and technology developments that benefit human and robotic exploration of destinations beyond low-Earth orbit (LEO) and form the basis for developing a commercial market in LEO. ISS is the blueprint for global cooperation—one that enables a multinational partnership and advances shared goals in space exploration. (*https://www.nasa.gov/mission_pages/station/main/index.html*)

Commercial Spaceflight Development (CSD): CSD facilitates U.S. private industry development of safe, reliable, and cost-effective human space transportation to and from LEO and the ISS for use by the U.S. Government and other customers. (*https://www.nasa.gov/exploration/commercial/index.html)*

Advanced Exploration Systems (AES): AES pioneers new approaches for rapidly developing prototype systems, demonstrating key capabilities, and validating operational concepts for future human missions beyond low-Earth orbit. AES activities are related to crew mobility, habitation, vehicle systems, robotic precursors, and foundational systems for deep space. (*https://www.nasa.gov/directorates/heo/aes/index.html*)

Space Communications and Navigation (SCaN): SCaN manages and operates all of NASA's space communications and navigation capabilities that are required for successful crewed and robotic space missions and manages NASA's radio-frequency spectrum. (*https://www.nasa.gov/directorates/heo/scan/index.html*)

Launch Services Program (LSP): LSP provides Agency expertise for commercial space transportation, procures commercial launch services for NASA's robotic spacecraft, certifies commercial launch vehicles, provides space transportation policy expertise, conducts launch vehicle technical assessments, and provides advisory support to the Cargo Resupply Services and Commercial Crew Programs. (*https://www.nasa.gov/centers/kennedy/launchingrockets/index.html*)

HEOMD Headquarters Leadership

Kathryn Lueders
Associate Administrator, Human Exploration and Operations Mission Directorate


Kathryn Lueders

Kathy Lueders assumed the role of Associate Administrator of the Human Exploration and Operations Mission Directorate on June 12, 2020. Since 2014, Lueders has directed the Commercial Crew Program—NASA's efforts to send astronauts to space on private spacecraft—which culminated in the successful launch of Demo-2 from Kennedy Space Center in Florida on May 30.

Lueders began her NASA career in 1992 at the White Sands Test Facility in New Mexico, where she was the Shuttle Orbital Maneuvering System and Reaction Control Systems Depot manager. She later moved to the International Space Station Program and served as transportation integration manager; in this position, she led commercial cargo resupply services to the Space Station.

Extended bio: *https://www.nasa.gov/feature/kathy-lueders-assoc-administrator-human-exploration-and-operations/*

HEOMD leadership team: *https://www.nasa.gov/directorates/heo/about.html*

4.3 Science Mission Directorate

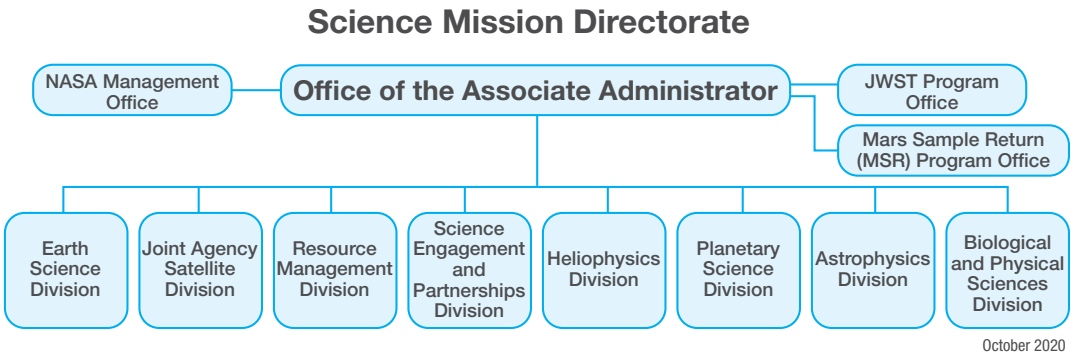
Mission Statement

The Science Mission Directorate (SMD) carries out the scientific exploration of Earth and space to expand the frontiers of Earth science, heliophysics, planetary science, astrophysics, and biological and physical sciences. Through a robust fleet of orbiting and landed robotic spacecraft; a suborbital program of sounding rockets, scientific balloons, and research aircraft; and a broad and diverse grants-based research program, SMD provides virtual human access to the farthest reaches of our solar system and beyond, as well as critical information about our home planet and sustained human exploration.

More information: *https://science.nasa.gov/*

Organizational Structure

The SMD organizational chart shows the Headquarters structure, including portfolio elements designated as divisions as well as supporting functional offices.



SMD division descriptions are noted below:

Earth Science: The Earth Science Division (ESD) missions help us to understand our planet's interconnected systems, from a global scale down to minute processes. The four program elements of ESD design science and technology, launch airborne and space missions, analyze the data and observations, and develop ways to put the information to use for societal benefit. (*https://smd-prod-admin.nasawestprime.com/earth-science*)

Planetary Science: The Planetary Science Division advances scientific knowledge of the origin and history of the solar system, the potential for life elsewhere, and the hazards and resources present as humans explore space. (*https://solarsystem.nasa.gov/*)

Heliophysics: The Heliophysics Division studies the nature of the Sun and how it influences the very nature of space—and, in turn, the atmospheres of planets and the technology that exists there. Studying this system not only helps us understand fundamental information about how the universe works, but also helps protect our technology and astronauts in space. (*https://smd-prod-admin.nasawestprime.com/heliophysics*)

Astrophysics: The Astrophysics Division studies the origin, structure, evolution, and destiny of the universe and searches for Earth-like planets. (*https://smd-prod-admin.nasawestprime.com/astrophysics*)

Biological and Physical Sciences: The Division of Biological and Physical Sciences Research focuses on using the space flight environment to conduct experiments that cannot be conducted on Earth to understand how biological systems accommodate to space flight environments and how physical systems respond to space flight environments, particularly weightlessness. (*https://science.nasa.gov/biological-physical*)

Joint Agency Satellite: The Joint Agency Satellite Division is an organization within NASA's Science Mission Directorate with broad crosscutting responsibilities. In partnership with the National Oceanic and Atmospheric Administration (NOAA), JASD manages the development and launch of reimbursable satellite programs, projects, and instruments. This partnership addresses systems to improve weather forecasting, as well as global measurements of the atmosphere and oceans. (*https://science.nasa.gov/about-us/smd-programs/joint-agency-satellite-division*)

SMD Headquarters Leadership

Thomas Zurbuchen
Associate Administrator, Science Mission Directorate

Thomas Zurbuchen became Associate Administrator for NASA's Science Mission Directorate in October 2016.

Previously, Zurbuchen was a professor of space science and aerospace engineering at the University of Michigan in Ann Arbor. He also was the university's founding director of the Center for Entrepreneurship in the College of Engineering. Zurbuchen's experience includes research in

Thomas Zurbuchen

solar and heliospheric physics, experimental space research, space systems, and innovation and entrepreneurship.

During his career, Zurbuchen has authored or coauthored more than 200 articles in refereed journals on solar and heliospheric phenomena. He has been involved with several NASA science missions—Ulysses; the MErcury Surface, Space ENvironment, GEochemistry and Ranging (MESSENGER) spacecraft, and the Advanced Composition Explorer (ACE). He also has been part of two National Academy standing committees, as well as various science and technology definition teams for new NASA missions.

Extended bio: *https://www.nasa.gov/feature/thomas-zurbuchen-associate-administrator-for-science/*

SMD leadership team: *https://science.nasa.gov/about-us/leadership/bios*

4.4 Space Technology Mission Directorate

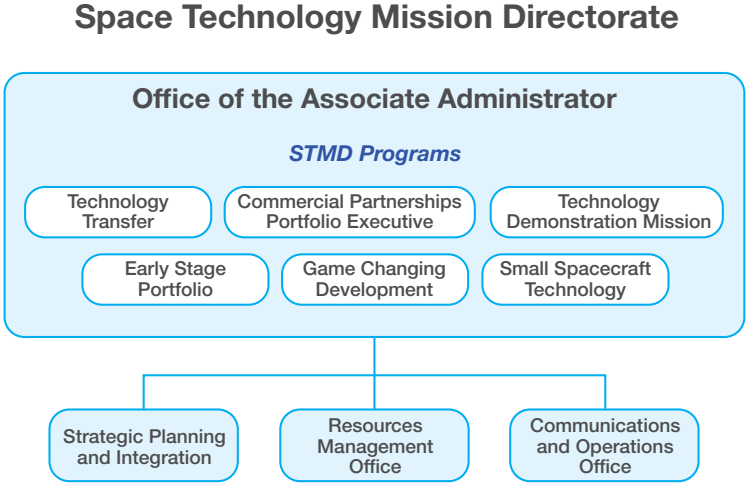
Mission Statement

The Space Technology Mission Directorate (STMD) develops and demonstrates high-payoff technologies with the intent to infuse them into current and future NASA missions. This organization employs a merit-based competition model with a portfolio approach spanning a range of discipline areas and technology readiness levels to advance technologies for the benefit of NASA, the aerospace industry, and other Government agencies, as well as to address national needs.

More information: *https://www.nasa.gov/directorates/spacetech/home/index.html*

Organizational Structure

The STMD organizational chart shows the Headquarters structure, including portfolio elements designated as programs as well as supporting functional offices.



STMD program descriptions are noted below:

Technology Transfer: The Technology Transfer Program ensures that technologies developed for missions in exploration and discovery are broadly available to the public, maximizing the benefit to the Nation. (*https://www.nasa.gov/directorates/spacetech/techtransfer*)

Early Stage Portfolio: This program uses research and development sourced from academia, industry, entrepreneurs, and the NASA workforce to bring pioneering approaches to the Agency's difficult and far-reaching exploration challenges.

Commercial Partnerships Portfolio: This program leverages common interests and increases collaboration by engaging a wide variety of stakeholders—including the established and emerging aerospace markets, private citizens, and economic regions—in NASA's mission. Activities in this portfolio include Flight Opportunities, Centennial Challenges, Technology Transfer, and Regional Economic Development.

Game Changing Development: The Game Changing Development Program seeks to identify and rapidly mature high-impact capabilities and technologies and to investigate innovative ideas and approaches that have the potential to revolutionize future space missions. (*https://www.nasa.gov/directorates/spacetech/game_changing_development/index.html*)

Technology Demonstration Missions: This program bridges the gap between need and means, between scientific and engineering challenges and the technological innovations needed to overcome them, between laboratory development and demonstration in space. The Technology Demonstration Missions Program is charged with proving revolutionary, crosscutting technologies—ones that could radically advance NASA's mission in space and reap untold benefits for science and industry here on Earth. (*https://www.nasa.gov/mission_pages/tdm/main/index.html#.VQb6XUjJzyE*)

Small Spacecraft Technology: The Small Spacecraft Technology Program identifies and supports the development of new subsystem technologies to enhance or expand the capabilities of small spacecraft while also supporting flight demonstrations of new technologies, capabilities, and applications for small spacecraft. Small spacecraft can be used as platforms for testing and demonstrating technologies and capabilities that might have applications in spacecraft and systems of any size. (*https://www.nasa.gov/directorates/spacetech/small_spacecraft/index.html#.VQb6QkjJzyE*)

STMD also manages these programs for the Agency: the Center Innovation Fund, Flight Opportunities, the Lunar Surface Innovation Initiative, NASA Innovative Advanced Concepts, NASA iTech, Prizes and Challenges, Small Business Innovation Research, Small Business Technology Transfer, and Space Technology Research Grants. (*https://www.nasa.gov/directorates/spacetech/programs*)

STMD Headquarters Leadership

James L. Reuter
Associate Administrator, Space Technology Mission Directorate

James L. Reuter

James L. Reuter was named NASA's Associate Administrator for the Space Technology Mission Directorate (STMD) at NASA Headquarters in June 2019, a position in which he had served in an acting capacity since February 2017. In this role, he provides executive leadership and management of the technology programs within STMD, with an annual investment value of $1.1 billion.

Reuter was the Deputy Associate Administrator of STMD from February 2017 to February 2018. Prior to this role, Reuter served as the senior executive for technical integration in the Center Director's Office at NASA's Marshall Space Flight Center from 2009 to 2015, providing strategic leadership on critical technology and integration activities. Additionally, Reuter served as the Exploration Systems Division (ESD) Standing Review Board chair, responsible for overseeing development activities of the Space Launch System, the Orion Multi-Purpose Crew Vehicle, the Ground Systems Development and Operations Programs, and the ESD integration activities.

Extended bio: *https://www.nasa.gov/directorates/spacetech/about_us/bios/reuter_bio*

STMD leadership team: *https://www.nasa.gov/directorates/spacetech/about_us/bios/index.html*

4.5 Mission Support Directorate

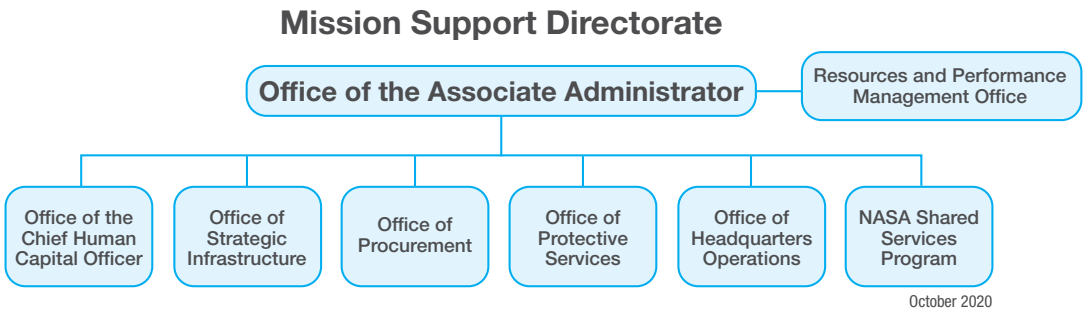
Mission Statement

The Mission Support Directorate (MSD) provides effective and efficient institutional support to enable the Agency to successfully accomplish its missions. It focuses on reducing institutional risk to NASA's current and future missions by improving processes, stimulating efficiency, and providing consistency and uniformity across institutional capabilities and services.

More information: *https://www.nasa.gov/msd*

Organizational Structure

The MSD organizational chart shows the Headquarters structure, including support offices as well as functional offices.



MSD support office descriptions are noted below:

Office of the Chief Human Capital Officer: This office is responsible for developing and aligning NASA civil service workforce strategies, programs, policies, and processes with the Agency's mission, strategic goals, and desired performance outcomes. (*https://nasapeople.nasa.gov/*)

Office of Strategic Infrastructure: The Office of Strategic Infrastructure provides executive and functional leadership, policy, institutional authority, and oversight for Agency infrastructure, including facilities engineering and asset management, real property management, environmental management, logistics management, aircraft management, and space environments testing management. (*https://www.nasa.gov/offices/osi*)

Office of Procurement: The Office of Procurement provides executive leadership, policy direction, and functional management of procurement activities (excluding financial assistance activities and Space Act Agreements) for the entire Agency. (*https://www.nasa.gov/office/procurement*)

Office of Protective Services: This office serves as the NASA focal point for policy formulation, oversight, coordination, and management of the Agency's physical security, intelligence, counterintelligence, counterterrorism, emergency management, continuity of operations, fire services, national security, communications security, classified information security, personnel security, identity and credential management, electronic physical access management, insider threat, and protective services training programs.

Office of Headquarters Operations: This office facilitates the effective integration of Headquarters activities, operations, and services across the organizations that compose or support NASA Headquarters.

NASA Shared Services Program: The NASA Shared Services Program performs integrated administrative functions and transactional activities for NASA in the areas of human resources, information technology, finance, and procurement. (*https://www.nasa.gov/centers/nssc*)

MSD Headquarters Leadership

Robert Gibbs
Associate Administrator, Mission Support Directorate


Robert Gibbs

Mr. Robert "Bob" Gibbs was appointed as the Associate Administrator for the Mission Support Directorate (MSD) at NASA Headquarters in Washington, DC, in December 2019. Gibbs joined NASA as the Assistant Administrator for the Office of Human Capital Management and NASA's Chief Human Capital Officer in May 2017.

From 2013 to 2017, Gibbs served as the Chief Human Capital Officer at the Department of Energy, where he was responsible for implementing agency-wide efforts on shared services, accountability, engagement, and human capital transformation. Gibbs is a retired naval officer, and, prior to becoming a member of the Senior Executive Service, he completed the nuclear training pipeline and served at sea on board the USS *Daniel Webster*, the USS *Henry L. Stimson*, and the USS *Simon Bolivar*, completing numerous strategic deterrent patrols; and ashore at nuclear repair

facilities, including the Trident Refit Facility in Bangor, ME, and the Washington and Naval Reactors Headquarters in Washington DC's Navy Yard.

Extended bio: *https://www.nasa.gov/feature/robert-gibbs-associate-administrator-for-the-mission-support-directorate*

MSD leadership team: *https://www.nasa.gov/msd/msd-leadership*

5 NASA FUNCTIONAL OFFICES

5.1 Office of the Chief Financial Officer

The Office of the Chief Financial Officer (OCFO) provides leadership for the strategic planning, performance reporting, budget analysis, justification, control, and reporting of all Agency fiscal resources; develops the Agency's detailed strategic plan and performance reports; leads the Agency's planning, programming, budgeting, and execution process; oversees all financial management activities relating to the programs and operations of the Agency; and monitors and reports the financial execution of the Agency budget. The OCFO manages the Agency's budget and financial operations, directs the preparation and submission of annual financial and budgetary reports, and coordinates Agency financial management activities with other Federal agencies. The OCFO was established in accordance with the Chief Financial Officers Act of 1990 (CFO Act), Public Law 101-576.

The OCFO has three deputy CFO positions—the Deputy CFO; the Deputy CFO for Appropriations; and the Deputy CFO for Budget, Strategy, and Performance. Each NASA Center has a CFO with their own staff, who report to the Agency CFO. The OCFO at Headquarters is made up of several offices and divisions: the Agency Financial Systems Office, the Budget Division, CFO University, the Financial Management Division, the Mission Support Office, the Policy and Grants Division, the Strategic Investments Division, and the Quality Assurance Division.

More information: *https://www.nasa.gov/offices/ocfo/home* and *https://www.nasa.gov/offices/ocfo/about*

OCFO Leadership

The Chief Financial Officer is a non-career, Senate-confirmed, senior executive position that will be filled at the discretion of an incoming administration.

OCFO leadership team: *https://www.nasa.gov/offices/ocfo/leadership*

5.2 Office of the Chief Information Officer

The Office of the Chief Information Officer (OCIO) provides leadership, planning, policy direction, and oversight for the management of NASA information and all NASA information technology (IT) in accordance with the responsibilities required by law. The Chief Information Officer (CIO) is the principal advisor to the Administrator and other senior officials on matters pertaining to information technology, the NASA Enterprise Architecture, IT security, records management, paperwork reduction, and privacy.

More information: *https://www.nasa.gov/offices/ocio/home/index.html*

The NASA OCIO is composed of six divisions and front office support staff:

- The Applications Division is responsible for management of the planning, design, integration, and delivery of NASA's enterprise applications projects and services, with IT authority including investment review and architecture compliance for applications across the Agency.
- The Business Management Division (BMD) administers NASA's information resources for Agency IT spending, strategic planning, and establishing IT governance and policy guidelines for evaluating Agency IT.
- The Cybersecurity and Privacy Division (CSPD) develops, implements, and maintains security strategy, requirements, and policy that align NASA's enterprise security programs, investments, and capabilities by delivering enterprise security services to improve the Agency's information and information technology security posture.
- The Enterprise Services and Integration Division (ESID) manages the portfolios for all enterprise IT services and provides integration of enterprise services to facilitate the use of a core suite of collaboration tools and content management systems.
- The Transformation and Data Division (TDD) provides technology infusion, data management and interoperability, and open innovation to meet the White House and OMB strategic goals of Open Data and Open Government.

Each Center has a Center CIO that reports to the NASA CIO to manage IT strategically, consistent with the NASA CIO's Agency strategy for IT, leveraging enterprise-wide services to the maximum extent. As part of enterprise management, Center CIO budgets and the Center CIO workforce will be realigned under the Agency CIO. Center CIOs are responsible for the day-to-day management of the CIO work taking place at their Centers.

Protection of Mission Assets

NASA's IT enables mission capabilities while strengthening NASA's ability to protect our systems and data. Partnering with NASA's stakeholders is essential to success. These interdependent efforts include the following:

1. Modernizing our network by implementing consistent protections at the boundary of NASA's network and moving to a common Virtual Private Network to access internal NASA systems remotely.
2. Simplifying how employees access NASA applications and systems while ensuring that authorized individuals have the appropriate access.
3. Ensuring that only authorized devices connect to NASA's internal networks and improving overall management and security of mobile devices.
4. Improving (remote) collaboration, e-mail, and underlying identity and directory capabilities while strengthening NASA's cybersecurity posture.
5. Implementing enhanced enterprise-wide cybersecurity logging capability that will significantly improve cybersecurity visibility, incident monitoring, and response.
6. Maturing cybersecurity risk management by identifying and educating key cybersecurity personnel across NASA to serve as cybersecurity risk management resources.
7. Managing the software used across NASA, including installed and cloud-based applications, to strengthen application cybersecurity as well as to enable efficient procurement and proactive life-cycle management of these assets.
8. Developing and implementing a NASA enterprise cybersecurity contract to apply flexible, efficient, and effective resources to support NASAs missions, simplify burdensome processes, improve fiscal management, and ensure that enterprise IT services are sustainably executed and integrated.

Federal Information Technology Acquisition Reform Act (FITARA)

The Federal Information Technology Acquisition Reform Act (FITARA) made significant changes to the ways the U.S. Federal Government buys and manages computer technology when it became law in 2014 by

1. enhancing CIO authority;
2. enhancing transparency and improving risk management in IT investments;
3. mandating portfolio reviews;

4. expanding training and use of IT cadres;
5. mandating Federal Data Center Consolidation Initiatives (FDCCI), more recently known as the Data Center Optimization Initiative (DCOI);
6. maximizing the benefit of the Federal Strategic Sourcing Initiative (FSSI); and
7. eliminating duplication and waste in information technology acquisition—reducing duplicative systems, examining software licensing options, making the business case for acquisition, and consolidating data centers.

NASA's FITARA score has improved since the issuance of Scorecard 1 in November 2015, when the Agency received an F. This past July, NASA's Scorecard 10 received an overall C+ and A's in IT Portfolio Savings, Software Licensing, and Data Center Optimization. Current scores for Cybersecurity, Risk Management, and Incremental Development are D's and an F, respectively.

Federal Information Security Management Act (FISMA)

The Federal Information Security Management Act (FISMA) recognized the importance of information security to the economic and national security interests of the United States. The act requires each Federal agency to develop, document, and implement an agency-wide program to provide information security for the information and information systems that support the operations and assets of the agency, including those provided or managed by another agency, contractor, or other source. It requires agency program officials, chief information officers, and inspectors general (IGs) to conduct annual reviews of the agency's information security program and report the results to Office of Management and Budget (OMB).

In fiscal year (FY) 2019, NASA focused efforts on modernizing technology services and governance, integrating enterprise cybersecurity risk management processes, and implementing leading enterprise security tools to reduce information technology costs and risks. NASA's FY 2019 FISMA Annual Report reflected the below Agency achievements:

- Exceeded the Federal cybersecurity Cross-Agency Priority (CAP) goal for Intrusion Detection and Prevention by certifying that 100 percent of Government-furnished devices are scanned for malware before connecting to the network remotely, enhancing NASA's ability to detect and prevent network intrusions.
- Progressed in deployment efforts for the Department of Homeland Security's (DHS) Continuous Diagnostics and Mitigation (CDM) tools by completing 100 percent coverage on the corporate network and significantly increasing coverage on mission networks.

- Achieved 90 percent Personal Identity Verification (PIV) card authentication for unprivileged users and 100 percent for privileged users; developed PIV solutions for a variety of unique NASA systems via CDM efforts, further solidifying the security of identity management and access on the Agency's network.

OCIO Leadership

Jeff Seaton
Acting Chief Information Officer


Jeff Seaton

Jeff Seaton is NASA's Chief Information Officer (acting since March 2020). Prior to this appointment, he served as Deputy Chief Information Officer. Seaton came to NASA Headquarters from NASA's Langley Research Center, where he was Chief Information Officer from 2011 to 2018. During that time, he was also a member of the NASA Langley Senior Staff and the Agency's CIO Executive Council. Jeff led transformative change efforts in both the Langley and CIO enterprise across the Agency to increase the effectiveness and accountability of the services provided by the organization.

Jeff began his career with NASA in 1991 as a research engineer designing robotic systems for use in space-based applications. He also conducted research in the field of computer vision techniques applied to the control of robots. Jeff was a member of NASA's 2008 Senior Executive Service Candidate Development Program and served as Langley's Chief Technology Officer and Deputy Chief Information Officer prior to becoming CIO.

Extended bio: *https://www.nasa.gov/content/jeff-seaton-acting-chief-information-officer*

5.3 Office of Communications

The Office of Communications (OCOMM) handles corporate, Agency-wide communications for NASA and is accountable for managing the planning, development, and implementation of communications events, activities, and products for stakeholders, including the general public. The office provides for the widest practicable and appropriate dissemination of information to news media and the general public concerning the objectives, methods, and results of NASA programs.

The office is responsible for planning, organizing, directing, and coordinating Agency-wide communications activities for all facets of NASA's mission, programs, activities, and functions for the Agency's workforce, media, and the general public. The scope of the Agency's communications entails a broad, diverse, and integrated set of efforts, including news and media engagement, digital services and products (including Web, multimedia, and social media), non-technical publications, and exhibits, as well as speaking and public engagement activities and events. The office works to promote effective NASA communications by ensuring synergy and strategic focus and working collaboratively with the Office of Legislative and Intergovernmental Affairs, the Office of STEM Engagement, and other Agency organizations, as appropriate.

Latest NASA news releases: *https://www.nasa.gov/news/releases/latest/index.html*

NASA live-streaming and NASA TV: *https://www.nasa.gov/nasalive*

OCOMM Leadership

The Associate Administrator for OCOMM is a non-career senior executive position and can be filled at the discretion of an incoming administration.

5.4 Office of Diversity and Equal Opportunity

The Office of Diversity and Equal Opportunity (ODEO) is responsible for developing and aligning NASA equal opportunity; civil rights compliance; and diversity strategies, programs, policies, and processes consistent with the Agency's mission, strategic goals, and performance outcomes. ODEO establishes Agency-wide policies on diversity and equal opportunity and defines strategies, program objectives, and top-level requirements; ensures statutory, regulatory, and fiduciary compliance with internal and external equal opportunity laws; provides technical assistance, training, and advocacy to promote an open and inclusive workplace; ensures consistency of approach to improve functional performance across the Agency; and monitors diversity and equal opportunity program performance.

ODEO Core Functions

- Diversity and inclusion policies and program management
- Special emphasis programs/employee resource groups/advisory working groups
- Equal Employment Opportunity (EEO) complaint management and processing (including adjudication and final actions)
- Anti-Harassment Program coordination
- Alternative Dispute Resolution (ADR) Program
- Diversity and EEO compliance and reporting (including No FEAR Act, Affirmative Employment, MD-715, etc.)
- External civil rights compliance
- Agency employee data analytics and reporting
- Reasonable Accommodations Program management

More information: *https://www.nasa.gov/offices/odeo/home*

ODEO Leadership

Steve Shih
Associate Administrator, ODEO

Steve Shih

Since October 2017, Steve Shih has served as NASA's Associate Administrator for Diversity and Equal Opportunity. From October 2010 through October 2017, Shih was Deputy Associate Director for Senior Executive Services and Performance Management at the U.S. Office of Personnel Management (OPM). In this capacity, he led OPM's organization responsible for human capital management policy for the Senior Executive Service and other senior professionals, including the selection, development, performance management, and recognition of Federal senior executives and other senior professionals. Shih also was responsible for leading Government-wide policy for all Federal employees with respect to performance management, awards, leadership development, employee engagement, and work-life and wellness programs (including telework and employee assistance programs).

Extended bio: *https://www.nasa.gov/feature/stephen-t-shih-associate-administrator-diversity-and-equal-opportunity*

5.5 Office of the General Counsel

The Office of the General Counsel (OGC) establishes Agency-wide legal policy; provides legal advice, assistance, and Agency-wide functional guidance; ensures the appropriateness of all legal actions and activities Agency-wide; and provides binding formal legal opinions on Agency matters. With respect to legal matters and issues, the General Counsel further ensures consistency of approach and eliminates duplication of functional support activities through collaboration, centralization, and/or consolidation of functions between and within Headquarters, the Centers, and separate NASA entities.

The OGC operates along the following disciplines: commercial/intellectual property law, contracts/acquisition integrity law, general law, international law, and ethics. Each NASA Center has a Chief Counsel that reports to OGC at NASA Headquarters. OGC also assists with the annual Manfred Lachs North America Space Law Moot Court Competition.

More information: *https://www.nasa.gov/offices/ogc/index.html*

OGC Leadership

Sumara M. Thompson-King
General Counsel

Sumara M. Thompson-King was selected as the General Counsel at NASA in June 2014. Thompson-King serves as the chief legal officer for the Agency and oversees its team of attorneys responsible for all aspects of NASA's legal affairs around the world. Previously, she served as the Deputy General Counsel responsible for oversight of substantive legal advice and assistance provided by NASA's Associate General Counsels to the Centers, through effective collaboration with each Center's Chief Counsel. She also served as the Agency's Suspension and Debarment Official.

Sumara M. Thompson-King

Extended bio: *https://www.nasa.gov/offices/ogc/about/sumara_bio.html*

OGC leadership team: *https://www.nasa.gov/offices/ogc/about/cccdirectory.html*

5.6 Office of International and Interagency Relations

The Office of International and Interagency Relations (OIIR) provides executive leadership and coordination for all NASA international activities and partnerships and for policy interactions between NASA and other U.S. executive branch offices and agencies. OIIR serves as the principal Agency liaison with the National Security Council, the Office of Science and Technology Policy, the Department of State, and the Department of Defense. OIIR also directs NASA's international relations; negotiates cooperative and reimbursable agreements with foreign space partners; provides management oversight and staff support to NASA's advisory committees, commissions, and panels; and manages the NASA Export Control Program and policy regarding foreign travel by NASA employees.

OIIR has six divisions: the Advisory Committee Management Division, the Aeronautics and Cross-Agency Support Division, the Export Control and Interagency Liaison Division, the Human Exploration and Operations Division, the Resources Management Division, and the Science Division. OIIR also maintains three liaison offices in Asia, Europe, and Russia.

More information: *https://www.nasa.gov/oiir/home*

OIIR Leadership

Mike Gold,
Acting Associate Administrator, OIIR


Mike Gold

Mike Gold currently serves as the acting Associate Administrator for NASA's Office of International and Interagency Relations. He is also responsible for providing strategic direction to the Office of General Counsel and supporting NASA's low-Earth orbit (LEO) commercialization efforts. Prior to joining NASA, Gold was the vice president of civil space at MAXAR Technologies and was also general counsel for the company's Radiant Solutions Business Unit. Additionally, Gold spent 13 years at Bigelow Aerospace, where he established the company's Washington office, oversaw the launches of its Genesis 1 and 2 spacecraft, and received a team award from NASA for his contributions to the Bigelow Expandable Activity Module.

Extended bio: *https://www.nasa.gov/feature/Michael_Gold*

5.7 Office of Legislative and Intergovernmental Affairs

The Office of Legislative and Intergovernmental Affairs (OLIA) provides executive leadership, direction, and coordination for all communications and relationships related to legislative issues between NASA and the U.S. Congress, state and local elected officials and governments, and space-related associations and citizen's groups.

OLIA has three divisions: 1) the Legislative Liaison Division, 2) the Legislative Reference and Analysis Division, and 3) the Outreach and Intergovernmental Affairs Division. OLIA also has a Center Legislative Officer at each NASA Center. OLIA interfaces with all Members of Congress as well as NASA's Authorization Committees; appropriations are handled out of the Office of the Chief Financial Officer (CFO), under the Deputy CFO for Appropriations.

In addition, OLIA

- serves as the principal advisor to the Office of the Administrator and provides consultation to NASA officials Agency-wide concerning all matters involving relations with the U.S. Congress and state and local elected officials and governments;
- establishes and maintains liaisons with Members of Congress, their staff, and support organizations; the Executive Office of the President and other departments and agencies; and state and local elected officials and government offices on legislative matters;
- arranges for representation by NASA at congressional hearings, investigations, and other legislative meetings affecting NASA; briefs officials representing NASA on the legislative aspects of their appearances; and reviews statements and other materials to be presented to ensure that they reflect the Administration's and NASA's management policies and objectives;
- participates in setting up guest operations at NASA launches and events for elected officials;
- ensures compliance by NASA with congressional reporting requirements and coordinates the clearance of legislative matters, proposed outside NASA, with other elements of the executive branch; and
- establishes and maintains liaisons with representatives of space-related industry, trade associations, think tanks, and nonprofits/nongovernmental organizations (NGOs) regarding legislative matters.

More information: *https://www.nasa.gov/offices/olia/home/index.html*

OLIA Leadership

The Associate Administrator for OLIA is a non-career senior executive position and can be filled at the discretion of an incoming administration.

5.8 Office of Science, Technology, Engineering, and Mathematics Engagement

The Office of Science, Technology, Engineering, and Mathematics (STEM) Engagement provides policy direction and leads strategy, planning, operational integration, and oversight, as well as assessment of the Agency's comprehensive set of functions, programs, projects, activities, and products dedicated to serve students, educators, and educational institutions. The scope of the Agency's STEM engagement function entails a broad set of efforts that enable unique opportunities for students to contribute to NASA's work and mission and engage students in learning experiences toward developing a diverse future STEM workforce.

NASA's Office of STEM Engagement delivers tools for students and educators to learn and succeed. STEM products, services, and opportunities apply the following design principles:

- **Mission-driven authentic STEM experiences:** Design experiential opportunities, design and development activities, research experiences, and/or products to enable students to contribute to NASA's endeavors in exploration and discovery and help solve problems and address needs and priorities that are critical to NASA's mission.
- **Evidence-based practices:** Use guidelines, strategies, frameworks, and promising practices informed by research, literature reviews, and/or evaluation to build the available body of facts (evidence) confirming program effectiveness and impact.
- **Diversity and inclusion:** Infuse objectives and target strategies, where practicable, to attract and sustain diversity in student participation and to incorporate approaches to foster and promote inclusion.
- **Scalability through partnerships and networks:** Incorporate in the design of an activity or product attributes and characteristics that provide opportunities to leverage partnerships and networks in order to magnify reach and impact.
- **Outcome-driven:** Establish outcomes and define corresponding metrics and measures to demonstrate success.

More information: *https://www.nasa.gov/stem*

Office of STEM Engagement Leadership

Mike Kincaid
Associate Administrator, Office of STEM Engagement


Mike Kincaid

The Associate Administrator for STEM Engagement is the principal advisor to the Administrator and other senior officials on matters pertaining to STEM engagement and educational endeavors aimed to ultimately benefit students and educational institutions. Kincaid chairs NASA's STEM Engagement Council, which integrates, oversees, and assesses NASA's STEM engagement functions and activities Agency-wide. Kincaid is also cochair of Federal Coordination in STEM Education (FC-STEM), a multiagency committee focused on STEM education efforts across the Federal Government.

In addition, Kincaid is NASA's representative on the International Space Education Board (ISEB) and served as the 2019 ISEB chair. ISEB shares best practices and unites efforts to foster interest in space, science, and technology among students worldwide.

Extended bio: *https://www.nasa.gov/stem/leadership/M_Kincaid_bio.html*

5.9 Office of Small Business Programs

The Office of Small Business Programs (OSBP) provides expertise on the utilization of all categories of innovative small business, including minority educational institutions that can deliver technical solutions in support of NASA, and ensures that the Agency complies with all Federal laws, regulations, and policies regarding small and disadvantaged business utilization. OSBP interfaces with the U.S. Small Business Administration and submits data for its scorecard rating. OSBP also awards annual Small Business Awards, recognizing industry partner contributions to NASA.

NASA is committed to providing all categories of small businesses with an opportunity to participate in both NASA prime contracts and subcontracts.

OSBP conducts training and outreach for small business owners by creating manuals, hosting "How To Do Business with NASA" and other outreach events, maintaining a knowledge portal, managing a mentor program, and creating other resources. OSBP maintains a small staff at Headquarters and supports a Small Business Specialist at each NASA Center.

More information: *https://osbp.nasa.gov/index.html*

OSBP Leadership

Glenn A. Delgado
Associate Administrator, OSBP

Glenn A. Delgado is the Associate Administrator of the NASA Office of Small Business Programs. As the Associate Administrator, Delgado provides executive leadership and policy direction for developing and implementing policies and initiatives throughout NASA to ensure that all categories of small businesses are afforded opportunities to compete for Agency contracts. Since Delgado's arrival at NASA in 2007, the dollars awarded directly to small businesses have increased significantly, from $1.9B in 2007 to $3B in 2019. NASA has also improved from a C score to an A score by the U.S. Small Business Administration.

Glenn A. Delgado

Extended bio: *https://osbp.nasa.gov/bio_delgado.html*

6 NASA'S TECHNICAL AUTHORITIES

NASA has three technical authorities conducting a vital role in NASA's governance to employ checks and balances among key organizations, ensuring that decisions have the benefit of different points of view and are not made in isolation. NASA separates the roles for programmatic and technical authorities to provide an organizational structure that emphasizes the authorities' shared goal of mission success while taking advantage of the different perspectives each brings. Mission Directorates and program and project managers support the Agency's established processes for reviewing technical standards and requirements—for which ownership is maintained by technical authorities.

There are three branches of technical authority—engineering, safety and mission assurance, and health and medical. Technical authority originates with the Administrator and is formally delegated to the NASA Associate Administrator and then to the NASA Chief Engineer for Engineering Technical Authority; the Chief of Safety and Mission Assurance for Safety and Mission Assurance Technical Authority; the Chief Health and Medical Officer for Health and Medical Technical Authority; and then to the Center Directors. Subsequent delegations down from the Center Directors are made to selected individuals at Center organizational levels.

For further details regarding the origin of technical authority, its role in NASA governance, common technical authority roles, and how the three branches of technical authority are implemented, refer to the following:

- *NPD 1000.0—NASA Governance and Strategic Management Handbook*
- *NPR 7120.5—NASA Space Flight Program and Project Management Requirements*

6.1 Office of the Chief Health and Medical Officer/ Health and Medical Technical Authority

The Office of the Chief Health and Medical Officer (OCHMO) is responsible for policy and oversight of all health and medical activities at NASA. The Chief Health and Medical Officer has been designated the Health and Medical Technical Authority (HMTA) for NASA. The HMTA implements the responsibilities of the OCHMO to assure that Agency health and medical policy, procedural requirements, and standards are addressed in program/project management when applicable and appropriate. The HMTA provides independent oversight of all health, medical, and space crew/personnel performance matters that either arise in association with the execution of, or are embedded in, NASA programs or projects. Although most HMTA issues involve human space flight, issues occurring on other NASA flight and research and technology programs/projects can be HMTA-related and must be evaluated accordingly.

The OCHMO establishes Agency-level health and medical policy, procedural requirements, and technical standards for use by programs and projects when applicable and appropriate. Any deviations from the policy, requirements, and standards can only occur with the concurrence of the HMTA.

Dr. J.D. Polk, DO, MS, MMM, CPE, FACOEP, FAsMA, is the Agency's Chief Health and Medical Officer, located at NASA Headquarters in Washington, DC. He began serving in this position in November 2016.


Dr. J.D. Polk

Dr. Polk received his degree in osteopathic medicine from the A.T. Still University in Kirksville, MO. He completed his residency in emergency medicine with the Mt. Sinai hospitals via Ohio University and completed his training in aerospace medicine at the University of Texas Medical Branch. He is board-certified in both emergency medicine and aerospace medicine. Dr. Polk holds a master of science in space studies from the American Military University, a master of medical management from the University of Southern California's Marshall School of Business, and a master's certificate in public health from the University of New England. Dr. Polk is well published in the fields of emergency medicine, disaster medicine, space medicine, and medical management.

More information: *https://www.nasa.gov/offices/ochmo/main/index.html*

6.2 Office of the Chief Engineer/ Engineering Technical Authority

The Office of the Chief Engineer (OCE) provides policy direction, oversight, and assessment for the NASA engineering and program management communities and serves as principal advisor to the Administrator and other senior officials on matters pertaining to the technical readiness and execution of NASA programs and projects. The Chief Engineer provides overall leadership for the Engineering Technical Authority (ETA) process, which establishes the engineering design processes, specifications, rules, and best practices to fulfill programmatic mission performance requirements. ETAs support the processing of changes, waivers, and deviations from engineering requirements.


Ralph R. Roe

As Chief Engineer, Ralph R. Roe, Jr., is responsible for the overall review and technical readiness of all NASA programs. Roe began his career at NASA's Kennedy Space Center in 1983, serving initially as a Propulsion Systems Test Engineer. Roe served in multiple leadership roles in Space Shuttle Engineering before being named Space Shuttle Engineering Director in October 1996, with responsibility for the engineering management and technical expertise of personnel involved in prelaunch, landing, recovery, and turnaround operations for the Space Shuttle fleet. Roe then served as the Space Shuttle Launch Director for four missions, including John Glenn's return to space and the first International Space Station flight. Next, Roe served as Manager of the Space Shuttle Vehicle Engineering Office at NASA's Johnson Space Center, where he was responsible for the orbiter fleet, flight software, flight crew equipment, and robotic arm from August 1999 to August 2003.

In 2003, Mr. Roe developed the concept for and became the first director of the NASA Engineering and Safety Center (NESC), located at NASA's Langley Research Center in Hampton, VA. The NESC was formed following the Space Shuttle Columbia accident to provide the Agency with the technical expertise, skills, and resources to offer an independent look at NASA's most difficult problems. Roe served as the NESC Director until February 2014, when he was selected as the NASA Chief Engineer. In this role Roe provides leadership for Engineering Technical Authority and programmatic policy, ensuring the technical and programmatic readiness of all of NASA's programs and projects.

More information: *https://www.nasa.gov/oce*

6.3 Office of Safety and Mission Assurance/ Safety and Mission Assurance Technical Authority

The Office of Safety and Mission Assurance (OSMA) assures the safety and enhances the success of all NASA activities through the development, implementation, and oversight of Agency-wide safety, reliability, maintainability, and quality assurance policies and procedures. OSMA includes the Mission Assurance Standards and Capabilities Division, Missions and Programs Assessment Division, Institutional Safety Management Division, and NASA Safety Center, as well as the Independent Verification and Validation Program. The Chief of Safety and Mission Assurance has been designated as the Safety and Mission Assurance Technical Authority (SMA TA) for NASA. The SMA TA establishes and is responsible for the SMA processes, specifications, rules, and best practices necessary to fulfill safety and programmatic mission assurance performance requirements. SMA TAs are assigned when new programs or projects begin, and their duties include providing input to program or project planning; overseeing proposed technical or process changes or decisions that could increase risks to safety, quality, or reliability; and guiding and advising the management of this risk. Unlike the leaders of other technical authorities, the Chief of SMA is fully empowered to suspend any operation or project activity that presents an unacceptable risk.

Terrence Wilcutt is NASA's Chief of Safety and Mission Assurance. Appointed to this role in September 2011, Wilcutt is responsible for the development, implementation, and oversight of all Safety and Mission Assurance policies and procedures for all NASA programs.


Terrence Wilcutt

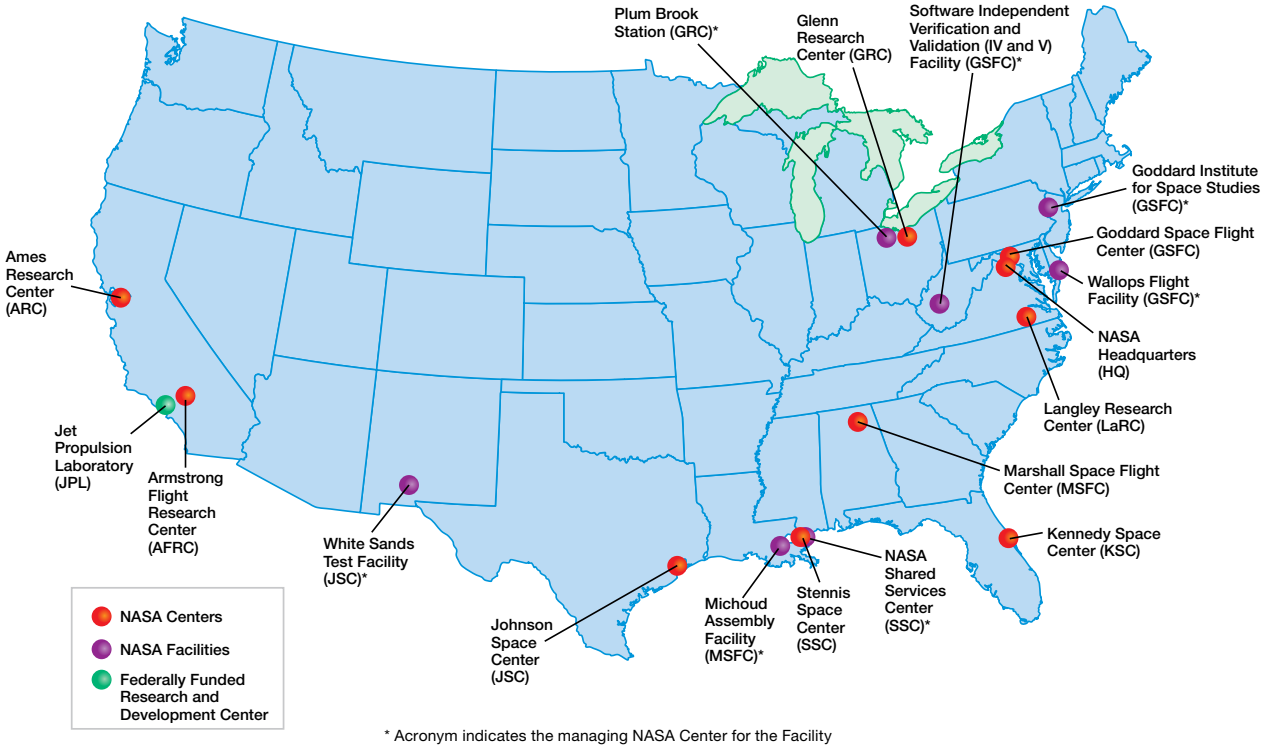
Wilcutt is a retired Marine colonel and veteran astronaut who had served as Director of Safety and Mission Assurance at NASA's Johnson Space Center (JSC) in Houston since 2008. In that position, Wilcutt was tasked with the Safety Technical Authority of the programs and projects at JSC as well as JSC's Institutional Safety program.

As Chief of Safety and Mission Assurance, Wilcutt is responsible for the development, implementation, and oversight of all Safety and Mission Assurance policies and procedures for all NASA programs.

More information: *https://sma.nasa.gov/*

7 NASA CENTER PROFILES

NASA owns and manages numerous Centers and facilities distributed across the United States, as denoted in the map below. Each field installation maintains a unique set of core capabilities and assets that enable NASA's primary portfolios in human spaceflight, Earth and space sciences, aeronautics research, and space technology development. In addition to the Government-owned and -operated locations, NASA manages the Jet Propulsion Laboratory, a Federally Funded Research and Development Center.



* Acronym indicates the managing NASA Center for the Facility

7.1 Ames Research Center

Description of Center

Ames Research Center (ARC/Ames) is located at Moffett Field, CA, in the heart of the dynamic Silicon Valley. Ames assets include the NASA Astrobiology Institute (NAI); the Solar System Exploration Research Virtual Institute (SSERVI); the NASA Aeronautics Research Institute (NARI); the Mars Climate Modeling Center (MCMC); and the NASA Research Park, a world-class, shared-use research and development and education campus comprising more than 100 onsite partners working together on innovation and entrepreneurship. ARC serves as host to other Federal, military, and civilian organizations, such as the California Air National Guard.

Resident at Ames are many unique national facilities, including the world's largest wind tunnel; one of the Nation's most capable supercomputers, Pleiades; the Quantum Artificial Intelligence Laboratory (QuAIL), designed to explore the potential for quantum computers to solve difficult optimization problems in aeronautics, Earth and space sciences, and space exploration; several state-of-the-art flight simulators; the Arc Jet Complex, which is the only such facility at NASA to simulate the extreme conditions of atmospheric entry; and a Mars wind tunnel.

More information: *https://www.nasa.gov/centers/ames/about/overview.html*

Mission Statement

ARC enables exploration through selected developments, innovative technologies, and interdisciplinary scientific discovery. ARC provides leadership in astrobiology, small satellites, technologies for crew exploration vehicles, the search for habitable planets, supercomputing, intelligent/adaptive systems, advanced thermal protection, and airborne astronomy. ARC develops tools for a safer, more efficient national airspace and unique partnerships benefiting NASA's mission.

List of Core Functions

- Advanced computing and IT systems
- Aeroscience
- Air traffic management
- Astrobiology and fundamental biology
- End-to-end low-cost space missions
- Entry, descent, and landing systems
- Intelligent adaptive human and robotic systems

Center Leadership

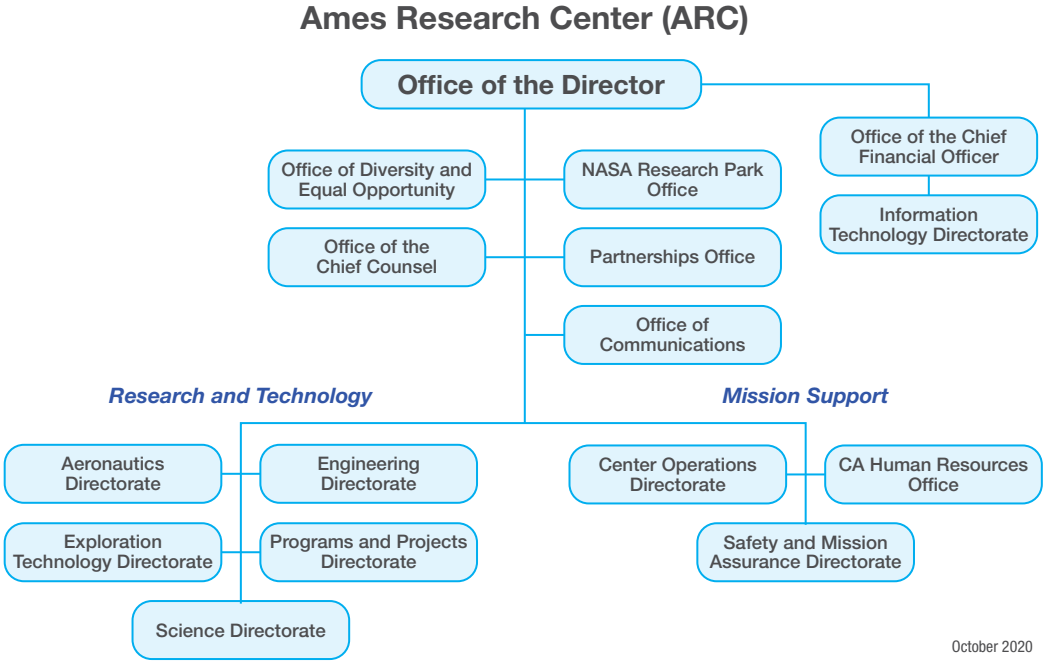
Center Director: Dr. Eugene Tu

Eugene Tu

Dr. Eugene L. Tu is the Center Director at Ames Research Center. Tu was most recently Director of Exploration Technology at Ames, a position he held from November 2005 until his selection as Ames Center Director in May 2015. There, he led four technology research and development divisions. Tu began his career as a research scientist conducting computational fluid dynamics research. After progressing through various research and managerial positions in such fields as computational aerodynamics, information technology (IT), and high-performance computing and communications, he became director of Exploration Technology in 2005. Tu earned his bachelor's degree in mechanical engineering from the University of California, Berkeley, in 1988, and both his master's degree and doctorate from Stanford University.

Extended bio: *http://www.nasa.gov/ames/center-director-eugene-tu*

Center Organization



7.2 Neil A. Armstrong Flight Research Center

Description of Center

Armstrong Flight Research Center (AFRC/Armstrong) is NASA's primary Center for atmospheric flight research and operations. The main campus is situated on approximately 830 acres within the confines of Edwards Air Force Base in California, permitting AFRC to conduct the full range of aeronautical flight research while maximizing the safe operation and recovery of one-of-a-kind flight vehicles.

For almost 75 years, research at NASA Armstrong has led to major advancements and breakthroughs in the design and capabilities of many state-of-the-art civil and military aircraft. Armstrong demonstrates America's leadership in aeronautics, Earth and space science, and aerospace technology as the Center seeks to revolutionize aviation, add to humanity's knowledge of the universe, and contribute to the understanding and protection of Earth.

Mission Statement

Armstrong advances technology and science through flight. AFRC performs flight research and technology integration to revolutionize aviation and pioneer aerospace technology; conducts airborne remote sensing and science missions; aids the Flight Opportunities Program for the Aeronautics Mission Directorate; and enables airborne astrophysics observation missions to discover the origin, structure, evolution, and destiny of the universe.

More information: *https://www.nasa.gov/centers/armstrong/about/overview.html*

List of Core Functions

- Research engineering
- Atmospheric flight research
- Dryden Aeronautical Test Range (DATR)
- Test Facilities
- Airborne and Stratospheric Observatory for Infrared Astronomy (SOFIA) mission operations
- Support aircraft and maintenance organization

Center Leadership

Center Director: David D. McBride

David D. McBride was appointed Director of Armstrong Flight Research Center on January 4, 2010, having served as acting Director since April 2009.

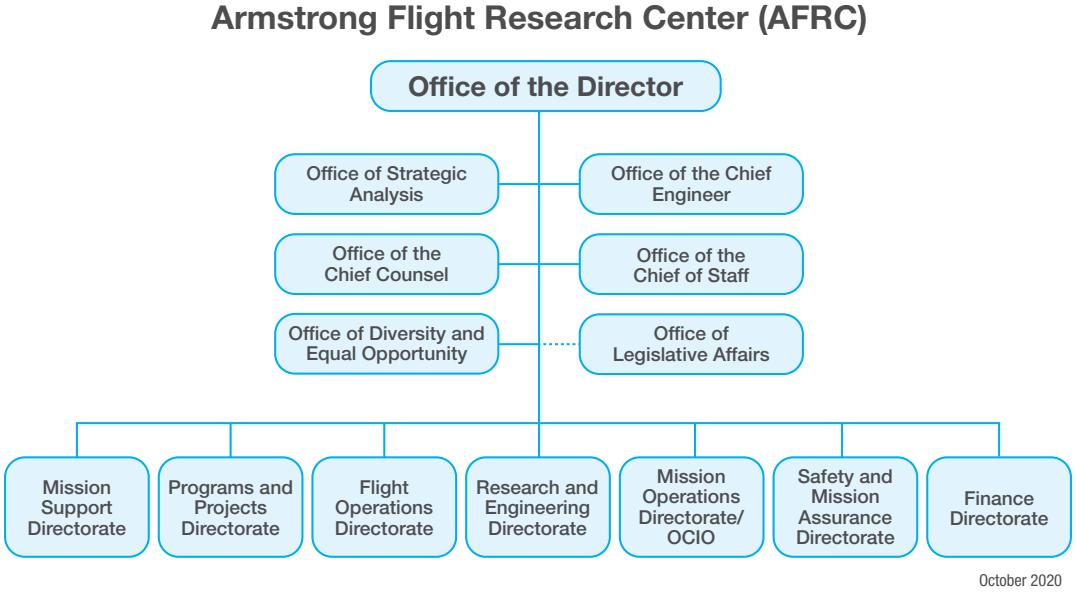
David D. McBride

During his tenure, the Center achieved full operational capability with the highly modified B-747 Stratospheric Observatory for Infrared Astronomy (SOFIA), completed flight evaluation of the X-48B/C hybrid wing-body experimental aircraft, transitioned NASA's Global Hawk unpiloted aircraft to science operations, and demonstrated the NASA Orion spacecraft's launch abort system.

McBride began his NASA career as a cooperative education student in 1982, specializing in digital flight control systems analysis. He earned a bachelor of science in electrical engineering in 1985 and an executive master of business administration in 1998, both from the University of New Mexico.

Extended bio: *http://www.nasa.gov/centers/armstrong/about/biographies/management/mcbride.html*

Center Organization



7.3 Glenn Research Center

Description of Center

Located at Lewis Field (350 acres next to Cleveland Hopkins International Airport) and Plum Brook Station (6,500 acres in Sandusky, OH), Glenn Research Center (GRC/Glenn) contains a unique collection of world-class laboratories and test facilities. The Lewis Field site and Plum Brook Station host many facilities designed to test aviation and space flight hardware, and altogether the campus is home to 25 major test facilities, 4 different highly capable research aircraft, and over 100 research/engineering laboratories.

More information: *https://www.nasa.gov/centers/glenn/home/index.html*

Mission

In support of the Agency's mission, GRC drives research, technology, and systems to advance aviation, enable exploration of the universe, and improve life on Earth. GRC at Lewis Field develops critical space flight systems and technologies to advance the exploration of our solar system and beyond while maintaining leadership in aeronautics. In partnership with U.S. industries, universities, and other Government institutions, research and development efforts focus on advancements in air-breathing propulsion; in-space propulsion and cryogenic fluids management; communications technology and architecture design/developments; aerospace power systems architectures and technologies, including energy storage and power conversion; advanced materials specializing in materials for extreme environments; and physical sciences, including biomedical technologies in space.

List of Core Functions

- Air-breathing propulsion
- Communications technology and development
- In-space propulsion and cryogenic fluids management
- Power, energy storage, and conversion
- Materials and structures for extreme environments
- Physical sciences and biomedical technologies in space

Center Leadership

Center Director: Dr. Marla E. Pérez-Davis

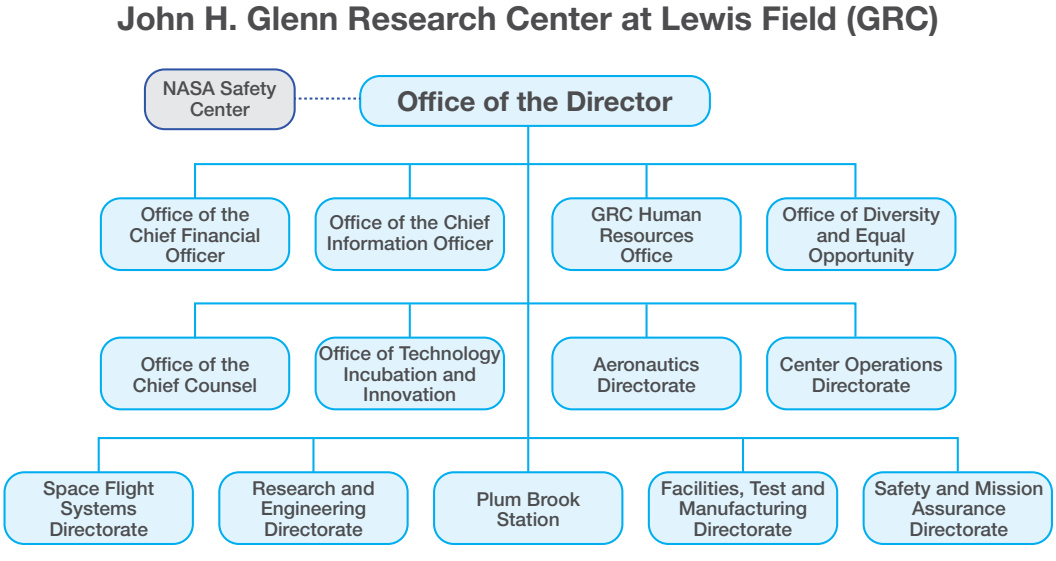
Dr. Marla E. Pérez-Davis serves as the Director of John H. Glenn Research Center in Cleveland, OH. In this position, she is responsible for planning, organizing, and directing the activities required to accomplish the missions assigned to the Center. Prior to becoming the Director, Dr. Pérez-Davis served as Glenn's Deputy Director. From 2014 to June 2016, she was Deputy Director of the Research and Engineering Directorate. Pérez-Davis is the recipient of numerous NASA awards, including the NASA Outstanding Leadership Medal and the prestigious Presidential Rank Award for Meritorious Executives.

Marla E. Pérez-Davis

Pérez-Davis, a native of Puerto Rico, earned her bachelor's degree from the University of Puerto Rico, a master of science degree from the University of Toledo, and a doctoral degree in chemical engineering from Case Western Reserve University. In 2006, she completed NASA's Senior Executive Service Candidate Development Program and the Office of Personnel Management Program.

Extended bio: *https://www.nasa.gov/centers/glenn/about/bios/perez-davis_bio.html*

Center Organization



October 2020

7.4 Goddard Space Flight Center

Description of Center

NASA's Goddard Space Flight Center (GSFC/Goddard), located in Greenbelt, MD, is home to the Nation's largest organization of scientists, engineers, and technologists who build spacecraft, instruments, and new technology to study Earth, the Sun, our solar system, and the universe. GSFC's installations include Wallops Flight Facility (WFF), the Independent Verification and Validation (IV&V) Facility, and the Goddard Institute for Space Studies (GISS).

More information: *https://www.nasa.gov/goddard*

Component Facilities

The Goddard Institute for Space Studies, located in New York City, is a component laboratory of Goddard Space Flight Center's Earth Sciences Division, specializing in space-based observations to provide a critical perspective for monitoring global climate and developing an understanding of Earth systems.

The Wallops Flight Facility, located on Virginia's Eastern Shore, is NASA's principal facility for management and implementation of suborbital research programs, and it serves as a test site for new launch technologies. Wallops launches low-cost, versatile suborbital and orbital rockets, balloons, and aircraft in support of Earth and space science research.

The Katherine Johnson Independent Verification and Validation Facility is located in Fairmont, WV, applying system and software engineering best practices to evaluate the correctness and quality of critical and complex software systems throughout the system development life cycle.

Mission Statement

GSFC advances NASA's mission by leading scientific research and by building, launching, and operating scientific instruments, spacecraft, and information systems. As a science center, Goddard seeks to understand Earth and to explore the universe through a robust program of scientific research in Earth science, astrophysics, heliophysics, and planetary science. As a space flight center, Goddard utilizes its core technical and programmatic expertise and facility capabilities to execute a broad range of flight missions and field campaigns.

List of Core Functions

- Astrophysics
- Earth science
- Heliophysics
- Planetary science
- Space communications and navigation
- Suborbital platforms and range services
- Sensor systems and instrument platforms
- Large-scale scientific information systems, data processing, and dissemination
- In-space satellite assembly and servicing
- End-to-end mission systems architecture and engineering

Center Leadership

Center Director: Dennis Andrucyk

Dennis Andrucyk has been the Director of Goddard Space Flight Center since January 2020. He previously served as the Deputy Associate Administrator for NASA's Science Mission Directorate.

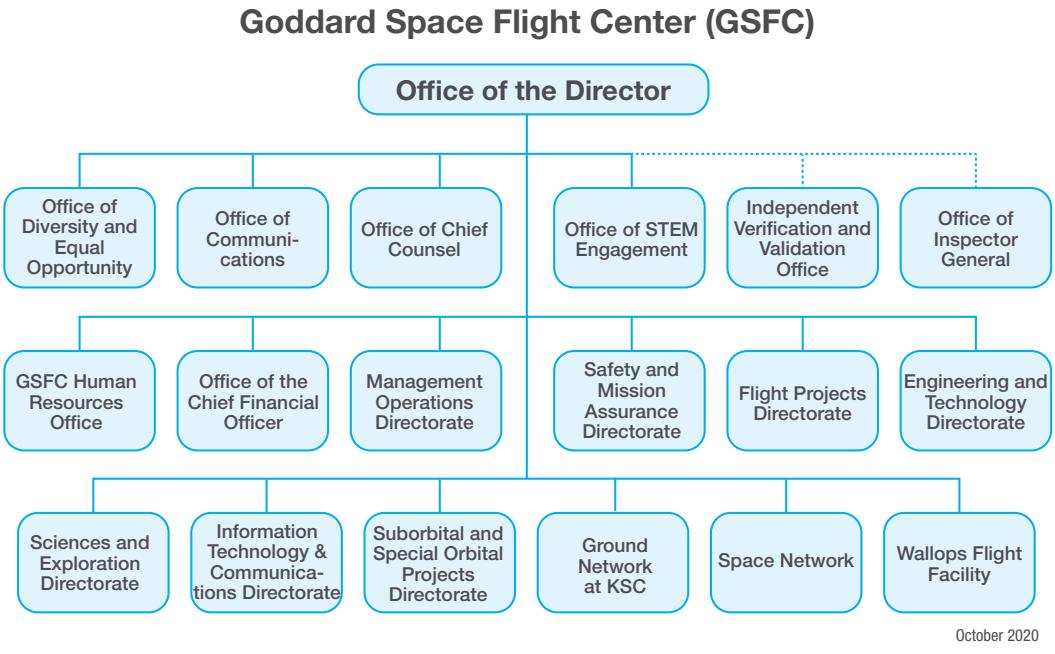
Dennis Andrucyk

During his time as Deputy Associate Administrator, innovative observing systems were flown, made possible by new research and technology. For example, although they were originally used as educational tools, distributed CubeSat constellations have flown as a single mission and made simultaneous multipoint Earth measurements, expanding the knowledge of our home planet in a low-cost manner.

Andrucyk has also championed efforts to develop a more diverse and inclusive workforce that encourages collaboration and partnership across NASA science activities. Andrucyk holds a bachelor of science in electrical engineering from the University of Maryland.

Extended bio: *https://www.nasa.gov/content/goddard/2020/center-director-dennis-andrucyk*

Center Organization



7.5 Federally Funded Research and Development Center: Jet Propulsion Laboratory

The Jet Propulsion Laboratory (JPL) is a Federally Funded Research and Development Center (FFRDC) managed for NASA through a contract with the California Institute of Technology. JPL develops and maintains technical and managerial competencies in support of NASA's mission. The NASA Management Office (NMO) is NASA's onsite office at JPL, conducting contract management and providing oversight, on behalf of NASA's Science Mission Directorate (SMD) and other Headquarters offices, of programmatic and institutional program implementation at JPL.

JPL's principal facilities are located on 167 acres in La Cañada Flintridge, CA, adjacent to Pasadena. Unique key facilities include a 25-foot thermal vacuum chamber with solar capability, a 12,000-square-foot class-10K clean room for integration and testing of spacecraft, a simulated outdoor Martian landscape (Mars Yard) used to test robotic prototypes, plus On-Lab capabilities to fabricate sensors for instruments and full fabrication capability of electrical and mechanical systems for NASA spacecraft.

More information: *https://www.nasa.gov/centers/jpl/home/index.html*

Component Facilities

The Deep Space Network (DSN): The DSN encompasses antenna complexes strategically placed on three continents, including the communications stations in Madrid, Spain; Canberra, Australia; and the Goldstone Complex near Barstow, CA. The DSN is the largest and most sensitive scientific telecommunications system in the world; it also performs radio and radar astronomy observations for the exploration of the solar system and the universe. JPL is responsible for operating the DSN for NASA.

Jet Propulsion Laboratory Core Functions

- End-to-end mission and instrument development for small, medium, and large missions
- Mars Exploration Program Office
- Entry, descent, and landing systems
- Planetary exploration, Earth science, and astrophysics
- Deep space communications and navigation

California Institute of Technology/ Jet Propulsion Laboratory Leadership

Laboratory Director: Dr. Michael M. Watkins

Michael M. Watkins, an engineer and scientist, became Director of JPL on July 1, 2016. In 2015–16, he spent a year at the University of Texas at Austin, where he held the Clare Cockrell Williams Chair in Engineering and was director of its Center for Space Research. Previously on the staff of JPL for 22 years, Watkins served in a variety of management roles in both line and project organizations. Watkins holds a Ph.D. degree in aerospace engineering from the University of Texas at Austin. He has published widely in both engineering and science and serves or served on the boards of numerous international scientific and engineering societies.

Michael M. Watkins

Extended bio: *http://www.jpl.nasa.gov/about/bio_watkins.php*

7.6 Lyndon B. Johnson Space Center

Description of Center

The Johnson Space Center (JSC/Johnson) is NASA's premier Center for human space exploration operations; program management; and spacecraft design, development, testing, and evaluation. JSC opened in 1963 in the Clear Lake area of Houston, TX, on 1,600 acres of land donated through Rice University. Additional aircraft and testing assets are located a few miles away at Ellington Field (228 acres reserved for military and NASA use).

JSC also manages the White Sands Test Facility (WSTF) near Las Cruces, NM. Established in 1963 on the White Sands Missile Range, it is a unique resource for testing and evaluating hazardous materials, space flight components, and in-space rocket propulsion systems.

Among the notable facilities at JSC are the Christopher Kraft Mission Control Center, the Neutral Buoyancy Laboratory, the Spaceflight Vehicle Mockup Facility, the Thermal Vacuum Test Complex, the Human Health and Performance Laboratory, and the Astromaterials Curation Facility.

More information: *https://www.nasa.gov/centers/johnson/home/index.html*

Mission Statement

JSC's mission is to lead human space exploration for the Agency, with the current focus on four priorities: maximizing use of the International Space Station (ISS), enabling the success of the Commercial Crew Program, developing the Orion spacecraft for future missions, and building the foundation for Artemis and future human missions to Mars.

JSC manages the ISS Program, the Orion Program, and the Human Research Program (HRP); additionally, the Center partners with Kennedy Space Center to manage the Commercial Crew Program (CCP). Through both program management and technology development activities, JSC manages a wide range of innovative partnerships with international, commercial, academic, and U.S. Government entities.

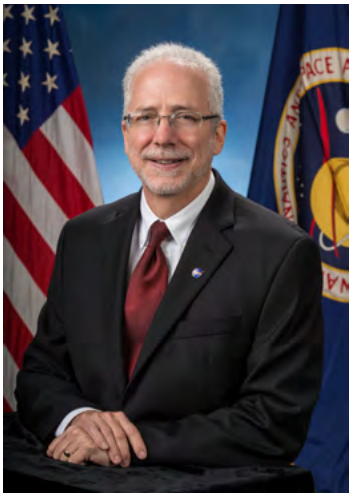
List of Core Functions

- Human spacecraft design, development, testing, and evaluation
- Human space flight operations
- Human health and performance in space
- Human space flight program management
- Human mission architecture analysis and development
- Spacesuit development and operations
- Safety and mission assurance
- Astromaterials research and curation

Center Leadership

Center Director: Mark S. Geyer

Mark S. Geyer is the 12th Director of NASA's Johnson Space Center, a position he assumed on May 25, 2018. In this role, Geyer leads a workforce of approximately 10,000 civil servant and contractor employees at one of NASA's largest installations—the Houston campus—and the White Sands Test Facility in Las Cruces, NM.



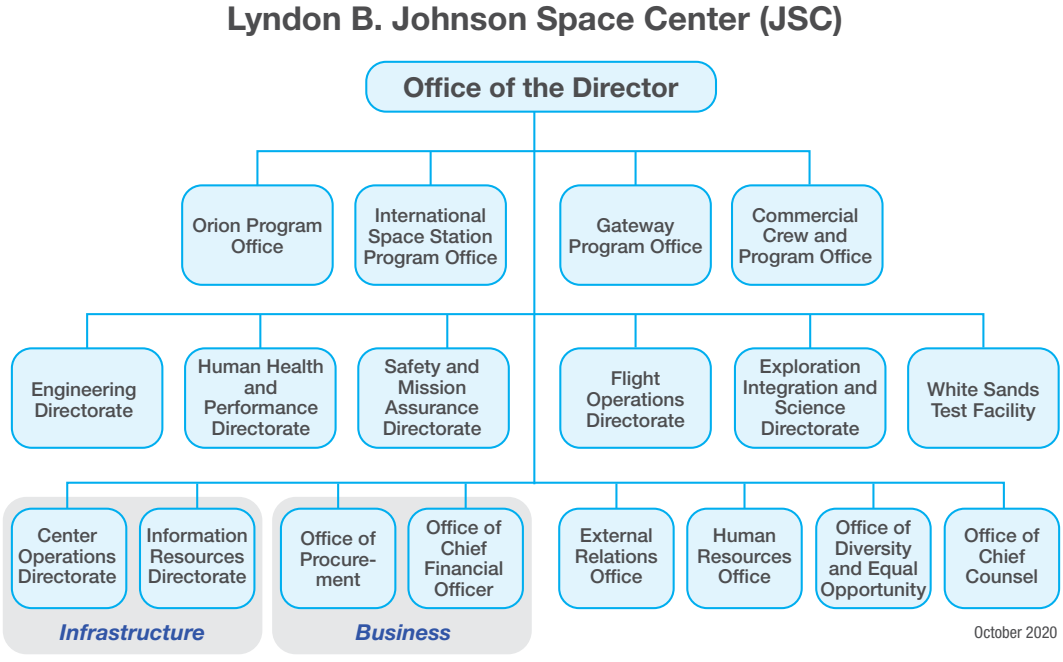
Mark S. Geyer

Geyer began his NASA career in 1990 at Johnson in the new business directorate. He joined the International Space Station Program in 1994, where he served in a variety of roles until 2005, including chair of the Space Station Mission Management Team; manager of the ISS Program Integration Office; and NASA lead negotiator with Russia on Space Station requirements, plans, and strategies.

Born in Indianapolis, Geyer earned both his bachelor of science and master of science degrees in aeronautical and astronautical engineering from Purdue University in Indiana.

Extended bio: *https://www.nasa.gov/centers/johnson/about/people/orgs/bios/geyer.html*

Center Organization



7.7 John F. Kennedy Space Center

Description of Center

The Kennedy Space Center (KSC/Kennedy) is located along Florida's east central coast, in an area known as the Space Coast. It shares a boundary with the Merritt Island National Wildlife Refuge, which includes 140,000 acres of land, water, and marshes. KSC has over 50 years of experience in the design, development, and operation of payload/spacecraft processing and launch systems used to support human space flight and robotic missions. KSC has recently transformed itself from a Government-only launch site to a multiuser spaceport supporting Government and commercial providers. KSC currently has over 80 active partnerships that include four separate human space flight programs. KSC facilities that have been made available for use by commercial and other Government space-related organizations include Pad-A (formerly Shuttle Launch Pad 39A), the Shuttle Landing Facility (SLF), the three Orbiter Processing Facility (OPF) high bays, a high bay in the Vehicle Assembly Building (VAB), and several smaller facilities and labs.

More information: *https://www.nasa.gov/centers/kennedy/home/index.html*

Mission Statement

KSC is responsible for the preflight processing, launch, landing, and recovery of the Agency's human-rated spacecraft and launch vehicles; the assembly, integration, and processing of ISS elements and flight experiments; the acquisition and management of launch services for Agency spacecraft; and leadership of the development of a commercial crew transportation system for access to and from low-Earth orbit and the ISS. KSC hosts the manufacturing of the Orion spacecraft. KSC executes research and technology projects in support of Agency exploration initiatives and establishes partnerships with commercial and other Governmental entities to optimize the use of KSC capabilities and facilities to establish a multiuser spaceport.

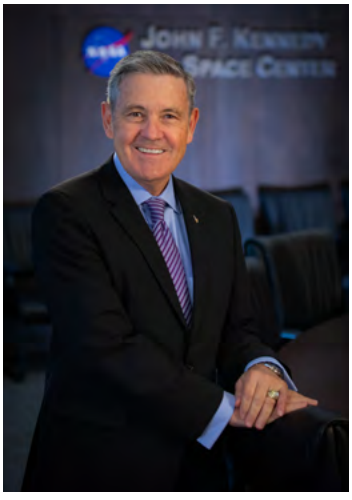
List of Core Functions

- Launch services and commercial crew
- Launch vehicle and spacecraft processing, launch, landing, recovery, and operations
- Payload and flight science experiment processing, integration, and testing
- Flight and ground systems and supporting infrastructure
- Advanced flight systems and technologies to advance exploration and space systems

Center Leadership

Center Director: Robert D. Cabana

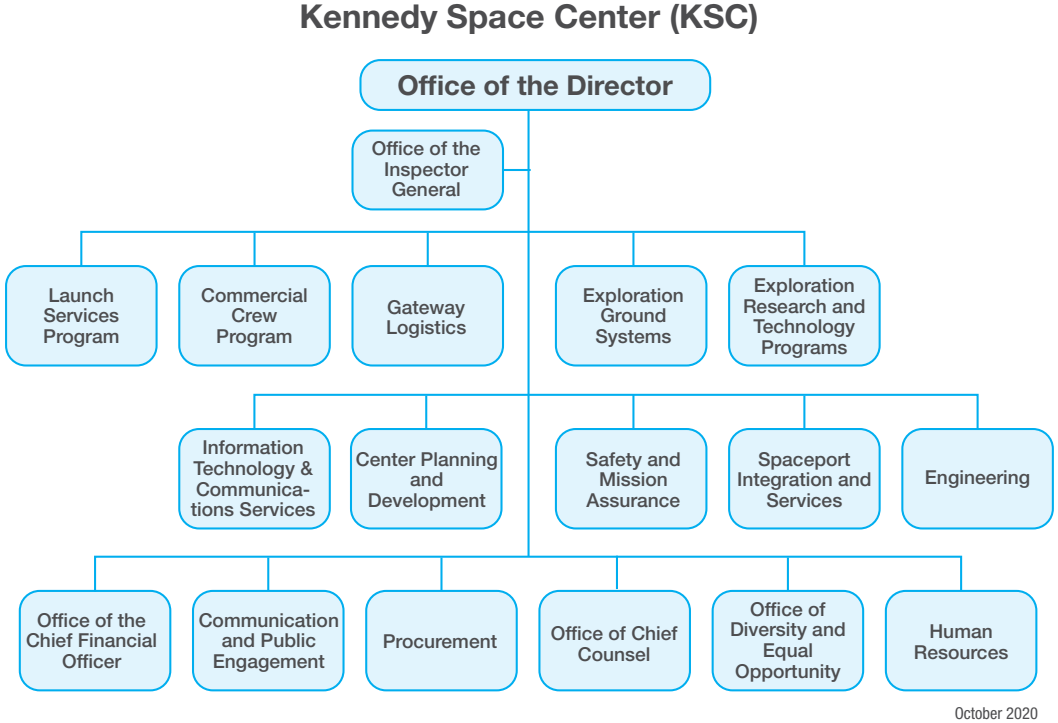
Robert D. Cabana, a former NASA astronaut, currently serves as Director of KSC. As Center Director, Cabana manages all NASA facilities and activities at the spaceport, including the civil service and contractor employees who operate and support numerous space programs and projects. A veteran of four space flights, Cabana logged 38 days in space. Following his retirement as a Marine Corps colonel in September 2000, Cabana was appointed to the Federal Senior Executive Service. He served in numerous challenging senior management positions at Johnson Space Center, ultimately becoming Deputy Director. In October 2007, Cabana was appointed as the Director of NASA's John C. Stennis Space Center; a year later, he was reassigned to KSC as its 10th Director.



Robert D. Cabana

Extended bio: *http://www.nasa.gov/centers/kennedy/about/biographies/cabana.html*

Center Organization



October 2020

7.8 Langley Research Center

Description of Center

Langley Research Center (LaRC/Langley) is a truly unique place that has experienced continued growth since becoming the Nation's first civilian aeronautical research laboratory in 1917. Based in Hampton, VA, it spans approximately 764 acres and directly borders the Air Force Joint Base Langley-Eustis. Langley's facilities enable the space exploration, aeronautics, and science that allow researchers to conduct experimentation, testing, and validation from concept to flight in order to advance next-generation aerospace technologies. The Center has more than 150 facilities, including wind tunnels, laboratories, and energy-efficient office space. Langley is also home to the NASA Engineering and Safety Center (NESC), which performs independent testing, analysis, and assessments of NASA's high-risk projects to ensure safety and mission success.

Langley is home to several aeroscience ground test facilities, including the National Transonic Facility (NTF), the Transonic Dynamics Tunnel (TDT), the 20-Foot Vertical Spin Tunnel (VST), the 8-Foot High Temperature Tunnel (HTT), the 14- by 22-Foot Subsonic Wind Tunnel, the Combined Loads Test System (COLTS), and the Langley Aerothermodynamics Laboratory (LAL).

More information: *https://www.nasa.gov/langley*

Mission Statement

LaRC is a research, science, technology, and development Center that provides innovations to enable NASA to make significant contributions to the Nation. The Center is recognized as a leader in systems innovation for expanding air mobility, exploring space, and definitively characterizing Earth's changing climate. Langley's work spans fundamental research to mission development and operations with an eye toward the next generation of ideas that provide new capabilities or significantly improve performance or cost.

List of Core Functions

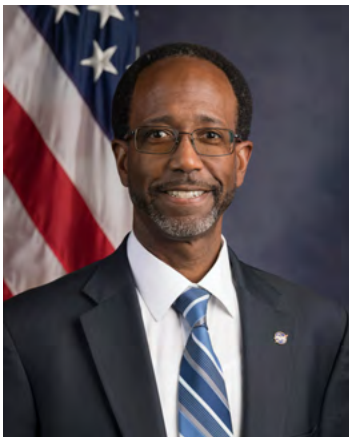
- Advanced materials and structural systems
- Aerosciences
- Atmospheric characterization
- Entry, descent, and landing
- Intelligent flight systems
- Measurement systems
- Systems analysis and concepts

Center Leadership

Center Director: Clayton P. Turner

Clayton P. Turner is the Director of Langley Research Center. He leads a diverse group of civil servant and contractor scientists, researchers, engineers, and support staff, who work to make revolutionary improvements to aviation, expand understanding of Earth's atmosphere, develop new technologies for space exploration, and contribute to NASA's broader exploration mission.

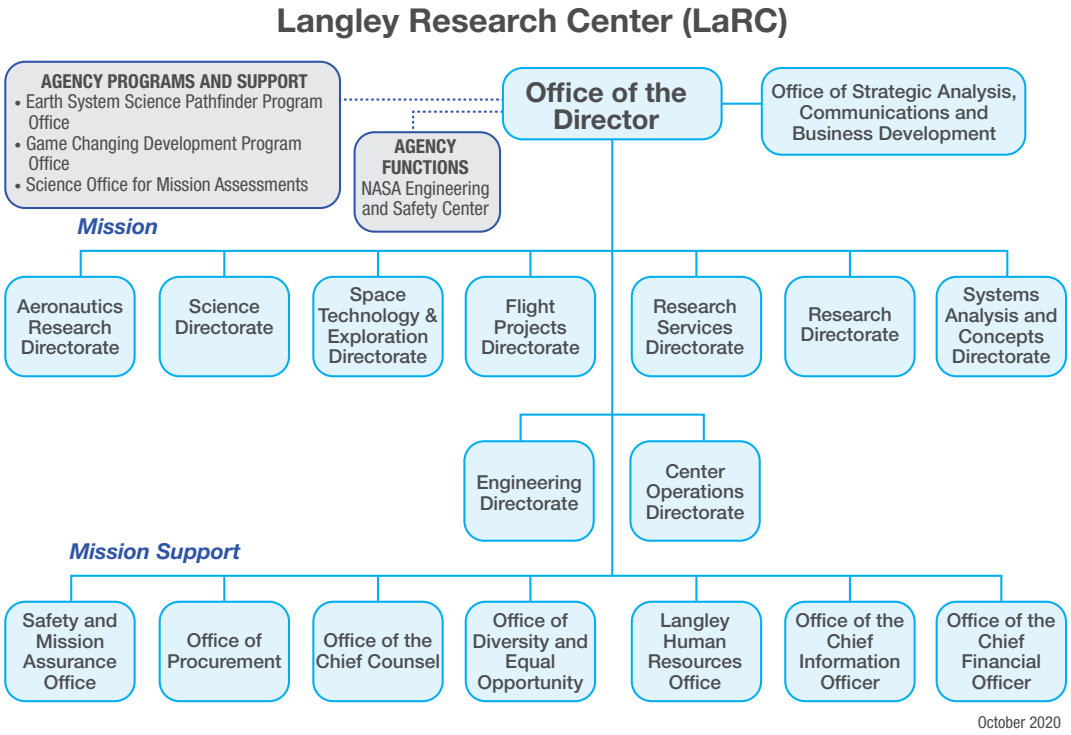
Turner has served the Agency for more than 29 years. He has held several roles at Langley, including systems engineer, Chief Engineer, Engineering Director, Associate Center Director, and Deputy Center Director.



Clayton P. Turner

Extended bio: *https://www.nasa.gov/feature/langley/clayton-p-turner-director-nasa-langley-research-center*

Center Organization



7.9 Marshall Space Flight Center

Description of Center

Marshall Space Flight Center (MSFC/Marshall) is located among dozens of Federal agencies at Redstone Arsenal in Huntsville, AL. Marshall delivers highly skilled, crosscutting engineering and support services to a broad spectrum of human exploration, science, and technology development missions. Marshall also manages the Michoud Assembly Facility, where the core stage of the Space Launch System (SLS) and the Orion crew vehicle are being built.

Marshall is developing the SLS and other critical elements and technologies essential for the Nation's human space exploration mission. Payload operations for the International Space Station (ISS) are managed at Marshall's Payload Operations and Integration Center. Marshall also enables scientific discovery through the development and testing of hardware and instruments for a variety of projects in high-energy astrophysics, heliophysics, and applied Earth science.

More information: *https://www.nasa.gov/centers/marshall/home/index.html*

Component Facility

The Michoud Assembly Facility is a component facility of MSFC. Michoud, located on 43 acres under one roof in New Orleans, LA, is one of the largest manufacturing facilities in the world. For more than 50 years, it has been entrusted with the unique manufacturing and assembly needs of NASA's human space exploration programs. The facility is large enough to serve multiple programs and projects and is expanding to include new, non-NASA tenants, adding to the expertise and capabilities of the facility.

Mission Statement

Marshall Space Flight Center provides leadership in the complex engineering of space transportation and propulsion systems, large space structures and systems, and scientific research. Marshall is responsible for developing the SLS as well as advanced technologies necessary for human exploration. Marshall also manages a number of programs and projects, including the ISS environmental control and life-support system, its payload operations, and numerous other facilities and experiments; the Chandra X-ray Observatory; the Discovery and New Frontiers programs; and space technology demonstration missions.

List of Core Functions

- Propulsion system development
- Large space structure development
- Advanced and large-scale manufacturing
- Space systems
- Scientific research

Center Leadership

Center Director: Jody Singer

Jody Singer is the Director of Marshall Space Flight Center. Appointed in September 2018, Singer manages one of NASA's largest Field Installations, with nearly 6,000 on- and near-site civil service and contractor employees and an annual budget of approximately $2.8 billion. Prior to being named to the position, Singer had served as Marshall's acting Director since July 2018 and was Deputy Director from February 2016 to July 2018, assisting the Director with the daily management of the Center's workforce and operations.

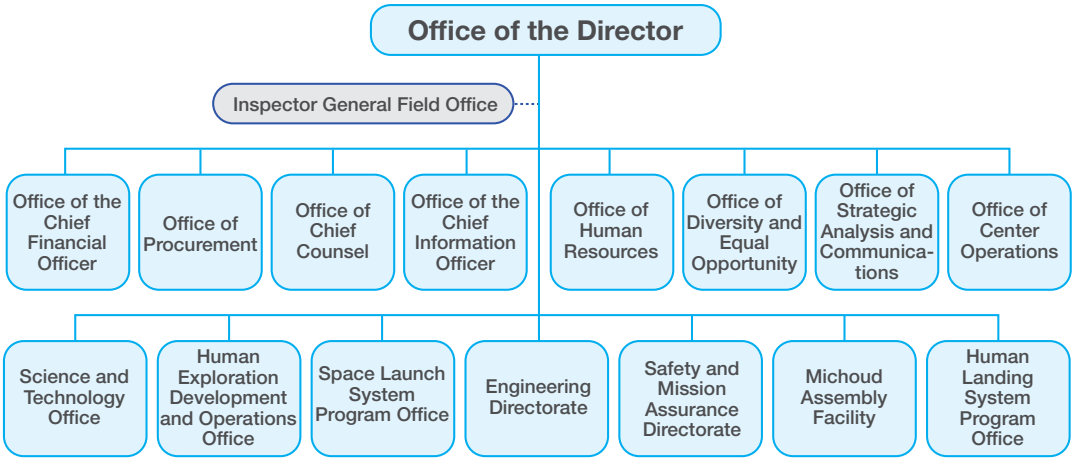
Jody Singer

During her 32-year NASA career, Singer has held leadership roles of increasing responsibility in human space flight, technology, and science flight missions programs and projects; she was appointed in 2002 to the Senior Executive Service, the personnel system covering top managerial positions in Federal agencies. She began her NASA engineering career in 1985 through the professional intern program in the mission planning and development office.

Extended bio: *https://www.nasa.gov/centers/marshall/jody-singer-bio.html*

Center Organization

George C. Marshall Space Flight Center (MSFC)



October 2020

7.10 Stennis Space Center

Description of Center

Stennis Space Center (SSC/Stennis) is located on the Mississippi Gulf Coast near Bay St. Louis, MS. SSC serves as the Nation's premier rocket propulsion testing facility and provides propulsion test services for NASA, the Department of Defense, and commercial customers.

SSC is a unique Federal city, hosting over 40 Federal, state, academic, and commercial interests, many of them engaged in technology-based initiatives. The resultant marine science technology cluster is an economic driver for the region, supporting Federal, state, and commercial interests. SSC also hosts several universities such as Mississippi State University and the University of Southern Mississippi. Institutional operational costs are shared among resident agencies, making it more cost-effective for tenants to accomplish their respective missions.

Stennis is also home to the NASA Shared Services Center (NSSC), which performs integrated administrative functions and transactional activities for NASA in the areas of human resources, information technology, finance, and procurement. Consolidation, standardization, and automation allow the NSSC to increase operational efficiency and improve overall customer service. The NSSC is primarily staffed through contractor support, not Federal employees.

More information: *https://www.nasa.gov/centers/stennis/home/index.html*

Mission Statement

Stennis Space Center implements NASA's mission by managing and operating rocket propulsion test facilities, as well as support infrastructure for the Human Exploration and Operations Mission Directorate. SSC also serves as Federal manager and host agency of a major Government multi-agency Center.

List of Core Functions

- Managing the rocket propulsion test program
- Hosting the NASA Shared Services Center

Center Leadership

Center Director: Dr. Richard J. Gilbrech

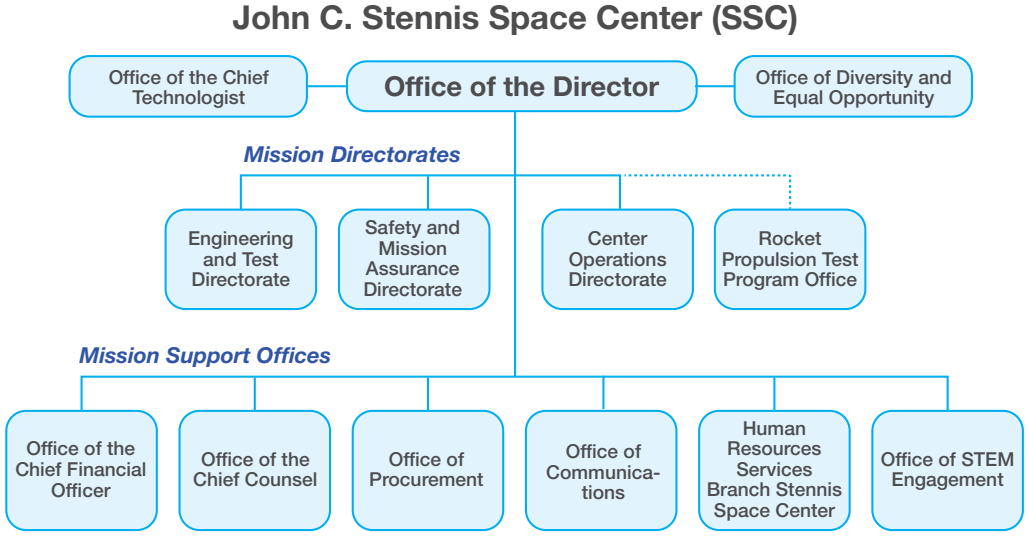
Richard J. Gilbrech has served as Director of Stennis Space Center since his appointment to the position in 2012. As Director, he provides executive leadership, overall direction, and management of the Center. He is responsible for implementing NASA's mission in the area of rocket propulsion testing: developing and maintaining NASA's world-class rocket propulsion test facilities. He serves as a Federal manager hosting an integrated multi-agency Federal laboratory.

Richard J. Gilbrech

Prior to this appointment, Gilbrech served as Deputy Director of Stennis. Gilbrech began his NASA career in 1991 at Stennis in the area of propulsion test technology.

Extended bio: *https://www.nasa.gov/centers/stennis/about/history/personalities/gilbrech.html*

Center Organization



October 2020

8 EXTERNAL OVERSIGHT AND ADVISORY INPUT

8.1 NASA Office of Inspector General

Mission

In accordance with the Inspector General Act, we conduct objective oversight of NASA programs and operations and independently report to the Administrator, Congress, and the public to further the Agency's accomplishment of its mission.

Active projects: *https://oig.nasa.gov/audits/activeProjects.html*

Issued reports: *https://oig.nasa.gov/audits/auditReports.html*

The NASA Office of Inspector General (OIG) is composed of four Offices—Audits, Investigations, Counsel, and Management and Planning—which implement the OIG mission. The NASA OIG consists of auditors, analysts, specialists, investigators, attorneys, and support staff at NASA Headquarters in Washington, DC, and NASA Centers throughout the United States.

NASA Inspector General

Paul K. Martin

Paul K. Martin was confirmed by the United States Senate as NASA Inspector General on November 20, 2009.

Paul K. Martin

Prior to his NASA appointment, Martin served as the Deputy Inspector General at the U.S. Department of Justice, Office of the Inspector General. In that capacity, he assisted the Inspector General in managing the audit, inspection, and investigative activities of the office's 425 employees. From 2001 to 2003, he served as Counselor to the Inspector General; from 1998 to 2001, he served as Special Counsel to the Inspector General.

Before joining the Department of Justice OIG, Martin spent 13 years at the U.S. Sentencing Commission in a variety of positions, including 6 years as the Commission's Deputy Staff Director. Martin was one of the Sentencing Commission's first employees when the agency was created in 1985, and he helped develop the first set of Federal sentencing guidelines.

8.2 NASA Advisory Committees and External Oversight

NASA's top two Federal advisory committees, the NASA Advisory Council (NAC) and Aerospace Safety Advisory Panel (ASAP), are key sources of external independent advice to the Agency from nationally and internationally recognized aerospace experts.

NASA Advisory Council

More information: *http://www.nasa.gov/offices/nac/home/index.html*

The NAC was created in 1977 by combining two preexisting Agency-level advisory committees into a larger, more comprehensive body of experts. The NAC reports directly to the NASA Administrator and is the most senior body charged with developing findings and recommendations across the breadth and depth of NASA's programs, policies, and plans for consideration by the NASA Administrator and Agency senior leadership. All formal recommendations to NASA are carefully considered and receive a formal Agency response.

Aerospace Safety Advisory Panel

More information: *https://oiir.hq.nasa.gov/asap/*

The U.S. Congress directed NASA to establish the Aerospace Safety Advisory Panel following the 1967 Apollo 1 fire on the launch pad that resulted in the death of three NASA astronauts. The purpose of ASAP is to advise the NASA Administrator and Congress on matters related to safety in NASA's aerospace programs. All formal Panel recommendations to NASA are carefully considered and receive a formal response from the Agency. The Panel is required to submit an annual report to the NASA Administrator and to Congress. The charter for the Aerospace Safety Advisory Panel is renewed every 2 years. The Panel typically holds four quarterly meetings and makes several focused "insight" visits each year to NASA Centers or the Agency's key contractors.

Previous annual reports: *https://oiir.hq.nasa.gov/asap/reports.html*

Other Advisory Groups

National Academies

More information: *https://www.nationalacademies.org/*

NASA has a longstanding tradition of seeking external independent technical assessments, studies, and expert advice from the National Academies of Sciences, Engineering, and Medicine. The National Academies provide independent, objective analysis and advice to the Nation and conduct other activities to solve complex problems and inform public policy decisions.

The National Academies manage two key independent advisory bodies for NASA: the Space Studies Board and the Aeronautics and Space Engineering Board.

National Space Council and Users' Advisory Group

More information: *https://www.nasa.gov/content/national-space-council-users-advisory-group*

The National Space Council (NSpC) is an advisory body chaired by the Vice President and consisting of several key Cabinet officials. It is charged with the coordination of U.S. national space policy across all relevant agencies and in all segments (civil, commercial, national security, international, etc.) to strengthen U.S. leadership in space.

The Users' Advisory Group (UAG) to the National Space Council (NSpC) was chartered in 2017 to ensure that the interests of industries and other non-Federal entities involved in space activities, including in particular commercial entities, are adequately represented in the National Space Council.

External Oversight

Government Accountability Office

The U.S. Government Accountability Office (GAO) is an independent, nonpartisan agency that works for Congress. GAO examines how taxpayer dollars are spent and provides Congress, Federal agencies, and the general public with objective, reliable information to help the Government save money and work more efficiently. The GAO High Risk List is a list of programs and operations that are "high risk" due to their vulnerabilities to fraud, waste, abuse, and mismanagement, or that need transformation. The list is issued every 2 years at the start of each new session of Congress.

NASA's Acquisition Management process has been on GAO's High Risk List since the list's creation in 1990. GAO contends that NASA's historically weak cost and schedule estimation process introduces risk to NASA's complex portfolio of major projects. In response to NASA's continued presence on the list, in 2018, NASA leadership approved a Corrective Action Plan (CAP) that commits NASA to pursuing mature Agency program and project management policies and processes, as well as related surveillance of contractors through appropriate insight and oversight. Significant progress was made on the 2018 CAP and, in July 2020, a renewed Corrective Action Plan was put into place. Initiatives in the updated Plan continue building on topics such as earned value management, program planning and control training, cost and schedule transparency, cost and schedule data collection, and contractor financial risk assessments. The next High Risk Report is expected from GAO in January 2021.

GAO also conducts an annual assessment of NASA's major projects, also known as the Quick Look engagement. This is a congressionally mandated review of how NASA is planning and executing its major acquisitions. All projects in Phases A through D, technology demonstrations, communications/tracking services, and related infrastructure refreshment activities with an estimated life-cycle cost of at least $250 million are included in the study. The most recent report was published in April 2020.

2018 NASA High Risk Corrective Action Plan in Response to Recent Programmatic Performance and NASA's Designation on GAO's High Risk List:
https://www.nasa.gov/sites/default/files/atoms/files/nasa_high_risk_corrective_action_plan_2018_0.pdf

2019 GAO High Risk List—NASA Acquisition Management:
https://www.gao.gov/highrisk/nasa/why_did_study#t=0

2020 NASA High Risk Corrective Action Plan in Response to Recent Programmatic Performance and NASA's Designation on GAO's High Risk List:
https://www.nasa.gov/sites/default/files/atoms/files/nasa_high_risk_corrective_action_plan_2020.pdf

2020 GAO Assessments of NASA's Major Projects:
https://www.gao.gov/assets/710/706505.pdf

9 NASA REFERENCE LINKS

NASA Home Page: *http://www.nasa.gov*

NASA Online Directives Information System (NODIS): *https://nodis3.gsfc.nasa.gov/main_lib.cfm*

Strategic Plan: *https://www.nasa.gov/sites/default/files/atoms/files/nasa_2018_strategic_plan.pdf*

Budget: *https://www.nasa.gov/news/budget/index.html*

NASA Coronavirus Response: *https://nasapeople.nasa.gov/coronavirus/*

NASA Newsletter: subscribe at *http://www.nasa.gov/subscribe*

NASA Morning Briefing: *http://nasa.bulletinintelligence.com/*

NASA Press Releases: *https://www.nasa.gov/news/releases/latest/index.html*

NASA Missions: *http://www.nasa.gov/missions/timeline/current/current_missions.html*

NASA Ombuds Program: *http://ombuds.hq.nasa.gov*

Office of Protective Services (OPS): *http://www.hq.nasa.gov/office/ops/nasaonly/index.html*

Office of Diversity and Equal Opportunity: *http://www.hq.nasa.gov/office/codee*

NASA History Home Page: *http://history.nasa.gov*

Headquarters Historical Reference Collection: *https://historydms.hq.nasa.gov/*

Safety: *http://www.hq.nasa.gov/hq/safety.html*

Records Management Program: *https://itcdweb.hq.nasa.gov/records_manage*

NASA Headquarters IT Security: *https://itcdweb.hq.nasa.gov/about/it-security-branch*

10 ACRONYMS

AAVP	Advanced Air Vehicles Program
ACE	Advanced Composition Explorer
ADR	Alternative Dispute Resolution
AES	Advanced Exploration Systems
AFRC	Armstrong Flight Research Center
AIAA	American Institute of Aeronautics and Astronautics
AOSP	Airspace Operations and Safety Program
APMC	Agency Program Management Council
ARC	Ames Research Center
ARMD	Aeronautics Research Mission Directorate
ASAP	Aerospace Safety Advisory Panel
ASC	Acquisition Strategy Council
ASCEND	Accelerating Space Commerce, Exploration, and New Discovery
ASIP	Agency Strategic Implementation Planning
ASM	Acquisition Strategy Meeting
BMD	Business Management Division
BPR	Baseline Performance Review
CAP	Cross-Agency Priority; Corrective Action Plan
CAPSTONE	Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment
CCP	Commercial Crew Program
CDM	Continuous Diagnostics and Mitigation
CECR	Construction and Environmental Compliance and Restoration
CFO	Chief Financial Officer
CIO	Chief Information Officer
CJS	Subcommittee on Commerce, Justice, Science, and Related Agencies
COLTS	Combined Loads Test System
COPUOS	Committee on the Peaceful Uses of Outer Space
CR	Continuing Resolution
CSD	Commercial Spaceflight Development
CSPD	Cybersecurity and Privacy Division
DART	Double Asteroid Redirection Test
DATR	Dryden Aeronautical Test Range
DCOI	Data Center Optimization Initiative
DHS	Department of Homeland Security

DOD	Department of Defense
DSN	Deep Space Network
DT	Digital Transformation
EC	Executive Council
EEO	Equal Employment Opportunity
EPP	Enterprise Protection Program
ESA	European Space Agency
ESD	Exploration Systems Development; Earth Science Division
ESID	Enterprise Services and Integration Division
ETA	Engineering Technical Authority
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
FAA	Federal Aviation Administration
FC-STEM	Federal Coordination in STEM Education
FDCCI	Federal Data Center Consolidation Initiatives
FEVS	Federal Employee Viewpoint Survey
FFRDC	Federally Funded Research and Development Center
FISMA	Federal Information Security Management Act
FITARA	Federal Information Technology Acquisition Reform Act
FSSI	Federal Strategic Sourcing Initiative
FTE	full-time-equivalent
FY	fiscal year
GAO	Government Accountability Office
GISS	Goddard Institute for Space Studies
GRC	Glenn Research Center
GSFC	Goddard Space Flight Center
GTAS	Governmentwide Treasury Account Symbol Adjusted Trial Balance System
HEOMD	Human Exploration and Operations Mission Directorate
HLS	Human Landing Systems
HMTA	Health and Medical Technical Authority
HRP	Human Research Program
HTT	High Temperature Tunnel
IASP	Integrated Aviation Systems Program
IG	inspector general
ISEB	International Space Education Board
ISS	International Space Station
IT	information technology
IV&V	Independent Verification and Validation
JAXA	Japan Aerospace Exploration Agency
JPL	Jet Propulsion Laboratory
JSC	Johnson Space Center

JWST	James Webb Space Telescope
KSC	Kennedy Space Center
LAL	Langley Aerothermodynamics Laboratory
LaRC	Langley Research Center
LEO	low-Earth orbit
LSP	Launch Services Program
MCMC	Mars Climate Modeling Center
MD	Mission Directorate
MESSENGER	MErcury Surface, Space ENvironment, GEochemistry and Ranging
MOU	Memorandum of Understanding
MSC	Mission Support Council
MSD	Mission Support Directorate
MSFC	Marshall Space Flight Center
NAC	NASA Advisory Council
NAI	NASA Astrobiology Institute
NARI	NASA Aeronautics Research Institute
NESC	NASA Engineering and Safety Center
NGO	nongovernmental organization
NIST	National Institute of Standards and Technology
NMO	NASA Management Office
NOAA	National Oceanic and Atmospheric Administration
NODIS	NASA Online Directives Information System
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NSC	National Security Council
NSDC	National Space Defense Center
NSF	National Science Foundation
NSpC	National Space Council
NSSC	NASA Shared Services Center
NTF	National Transonic Facility
OACS	Office of Agency Council Staff
OCE	Office of the Chief Engineer
OCFO	Office of the Chief Financial Officer
OCHMO	Office of the Chief Health and Medical Officer
OCIO	Office of the Chief Information Officer
OCOMM	Office of Communications
OCS	Office of the Chief Scientist
OCT	Office of the Chief Technologist
ODEO	Office of Diversity and Equal Opportunity
OFT	Orbital Flight Test
OGC	Office of the General Counsel

OIIR	Office of International and Interagency Relations
OLIA	Office of Legislative and Intergovernmental Affairs
OMB	Office of Management and Budget
OPF	Orbiter Processing Facility
OPM	Office of Personnel Management
OPS	Office of Protective Services
OSBP	Office of Small Business Programs
OSMA	Office of Safety and Mission Assurance
PIV	Personal Identity Verification
PMIO	Program Management Improvement Officer
PPBE	Planning, Programming, Budgeting, and Execution
QuAIL	Quantum Artificial Intelligence Laboratory
QueSST	Quiet Supersonic Transport
R&D	research and development
SCaN	Space Communications and Navigation
SLF	Shuttle Landing Facility
SLS	Space Launch System
SMA TA	Safety and Mission Assurance Technical Authority
SMC	Senior Management Council
SMD	Science Mission Directorate
SOFIA	Stratospheric Observatory for Infrared Astronomy
SPG	Strategic Planning Guidance
SSC	Stennis Space Center
SSERVI	Solar System Exploration Research Virtual Institute
SSMS	Safety, Security, and Mission Services
STEM	Science, Technology, Engineering, and Mathematics
STM	Space Traffic Management
STMD	Space Technology Mission Directorate
TACP	Transformative Aeronautics Concepts Program
TDD	Transformation and Data Division
TDT	Transonic Dynamics Tunnel
UAG	Users' Advisory Group
ULI	University Leadership Initiative
USCG	U.S. Coast Guard
USSF	United States Space Force
VAB	Vehicle Assembly Building
VST	Vertical Spin Tunnel
WFF	Wallops Flight Facility
WSTF	White Sands Test Facility