

National Aeronautics and Space Administration



FY 2022

Budget Request

www.nasa.gov

NASA FY 2022 Request Directly Supports Administration Priorities



Addressing the Climate Crisis at Home and Abroad

- Next-Generation Earth System Observatory
- Sustainable Flight National Partnerships for highly efficient aircraft
- University research on zero-emissions aviation

Restoring America's Global Standing

- ISS, the world's only permanently crewed and multi-national space platform
- Gateway, a platform for vital international partnerships for sustained lunar exploration
- A regular cadence of Artemis missions to the Moon
- International partnerships through the Artemis Accords
- \$7.9B for U.S. leadership in cutting-edge science revolutionizing our understanding of the universe, solar system, and home planet
- International cooperation in science, including flagship missions like Webb Telescope and Mars Sample Return

Promoting Racial and Economic Equity

- Landing first woman and first person of color on the Moon
- Broadening participation by historically underserved communities in STEM
- Diversity, equity, and inclusion in NASA grants

Driving Economic Growth

- Spurs a growing LEO economy, anchored by ISS
- Ensuring American leadership in the emerging air mobility market, worth up to \$115 billion a year by 2035
- X-planes (X-57, X-59) and maintaining America's lead in industry with over \$1.7 trillion in U.S. economic impact
- Broadening focus on cross-cutting space technologies that will support creating good jobs in a growing space industry
- Over \$280 million in direct investment for small business innovative research and technology transfer

Artemis: Landing Humans On the Moon



Lunar Reconnaissance Orbiter: Continued surface and landing site investigation



Artemis I: First human spacecraft to the Moon in the 21st century



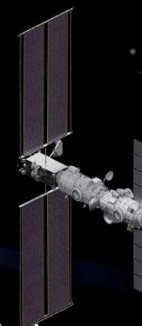
Artemis II: First humans to orbit the Moon and rendezvous in deep space in the 21st Century



Gateway begins science operations with launch of Power and Propulsion Element and Habitation and Logistics Outpost



Artemis III-V: Deep space crew missions; cislunar buildup and initial crew demonstration landing with Human Landing System



Early South Pole Robotic Landings
Science and technology payloads delivered by Commercial Lunar Payload Services providers

Volatiles Investigating Polar Exploration Rover
First mobility-enhanced lunar volatiles survey

Uncrewed HLS Demonstration

Humans on the Moon - 21st Century
First crew expedition to the lunar surface

LUNAR SOUTH POLE TARGET SITE

Artemis Base Camp Buildup

First lunar surface expedition through Gateway; external robotic system added to Gateway; Lunar Terrain Vehicle delivered to the surface

Sustainable operations with crew landing services; Gateway enhancements with refueling capability, additional communications, and viewing capabilities

Pressurized rover delivered for greater exploration range on the surface; Gateway enables longer missions

Surface habitat delivered, allowing up to four crew on the surface for longer periods of time leveraging extracted resources. Mars mission simulations continue with orbital and surface assets.

Lunar Terrain Vehicle (LTV)

Crew Landing Services

Pressurized Rover

Fission Surface Power

ISRU Pilot Plant

Surface Habitat

SUSTAINABLE LUNAR ORBIT STAGING CAPABILITY AND SURFACE EXPLORATION

MULTIPLE SCIENCE AND CARGO PAYLOADS | U.S. GOVERNMENT, INDUSTRY, AND INTERNATIONAL PARTNERSHIP OPPORTUNITIES | TECHNOLOGY AND OPERATIONS DEMONSTRATIONS FOR MARS

FY 2022 Budget Request: Agency

(\$ in Millions)



Budget Authority (\$M)	FY 2020 ^{1/}	FY 2021 ^{2/}	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Deep Space Exploration Systems	5,959.8	6,517.4	6,880.4	7,014.1	7,263.7	7,514.9	7,772.8
Exploration Systems Development	4,512.8	4,544.6	4,483.7	4,384.0	4,219.0	3,888.0	3,867.0
Exploration Research & Development	1,447.0	1,972.8	2,396.7	2,630.1	3,044.7	3,626.9	3,905.8
Space Technology	1,100.0	1,100.0	1,425.0	1,454.5	1,486.4	1,519.2	1,552.9
Space Operations	4,134.7	3,988.2	4,017.4	4,109.3	4,103.3	4,103.3	4,103.3
International Space Station	1,516.1	1,321.6	1,327.6	1,309.7	1,279.4	1,284.5	1,284.5
Space Transportation	1,746.2	1,872.9	1,771.7	1,827.1	1,849.0	1,843.7	1,843.7
Space and Flight Support	857.4	776.6	817.0	786.4	788.8	789.0	789.0
Commercial LEO Development	15.0	17.0	101.1	186.1	186.1	186.1	186.1
Science	7,143.1	7,300.8	7,931.4	8,095.6	8,272.9	8,455.7	8,643.4
Earth Science	1,971.8	2,000.0	2,250.0	2,343.5	2,398.3	2,573.0	2,702.3
Planetary Science	2,712.6	2,699.8	3,200.0	3,196.3	3,266.5	3,226.9	3,168.7
Astrophysics	1,306.2	1,356.2	1,400.2	1,461.8	1,491.5	1,512.3	1,594.1
Heliophysics	724.5	751.0	796.7	803.3	816.6	833.6	858.5
James Webb Space Telescope	423.0	414.7	175.4	172.5	172.0	172.0	172.0
Biological and Physical Sciences	5.0	79.1	109.1	118.1	128.0	137.9	147.8
Aeronautics	783.9	828.7	914.8	933.7	954.1	975.2	996.8
STEM Engagement	120.0	127.0	147.0	150.0	153.3	156.7	160.2
Safety, Security, and Mission Services	2,913.3	2,936.5	3,049.2	3,112.3	3,180.5	3,250.8	3,323.0
Mission Services & Capabilities	1,849.7	1,918.3	2,028.8	2,070.8	2,113.7	2,157.6	2,202.4
Engineering, Safety, & Operations	1,063.6	1,018.2	1,020.4	1,041.5	1,066.8	1,093.2	1,120.6
Construction & Envrmtl Compl Restoration	432.5	428.5	390.3	398.4	407.1	416.1	425.3
Construction of Facilities	357.8	370.4	315.6	322.2	329.3	336.7	344.2
Environmental Compliance and Restoration	74.7	58.1	74.7	76.2	77.8	79.4	81.1
Inspector General	41.7	44.2	46.0	47.0	48.0	49.1	50.2
NASA Total	22,629.0	23,271.3	24,801.5	25,314.9	25,869.3	26,441.0	27,027.9

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NASA Mission Planning Manifest: FY 2021 – FY 2026



- NASA Mission on US Commercial Launch Vehicle
 - Reimbursable Mission for NOAA
**** NASA does not directly manage/control JASD missions. LRDs reflected are to the best of our knowledge
 - Joint NASA-Int'l Partner Mission
 - Int'l Mission with NASA contribution
 - Joint NASA-USAF Mission
 - Joint NASA-Public/Private Partnership
 - Exploration Systems Development Mission
 - Commercial Crew Mission to ISS
 - Commercial Resupply Services Mission to ISS
 - Future Commercial Resupply Mission
 - Aeronautics Mission
 - Moon-Mars Missions
- U/R** Under Review (Pending protest resolution)
- *** Instrument only
- + Future CRS-2 unknown, will be updated after award of CRS-2 when cargo delivery capabilities are known
- ✓ Mission successfully launched

Dates reflect Agency Baseline Commitments or updated Agency schedules and may include schedule margin beyond any manifested launch dates

A composite image of space featuring Earth, the Moon, Mars, and a galaxy, with an astronaut in the foreground. The astronaut is wearing a white and blue spacesuit with a red stripe and is waving. The text "Account Summaries" is overlaid in the center.

Account Summaries

FY 2022 Budget Request: Exploration

(\$ in Millions)



Budget Authority (\$M)	FY 2020 ^{1/}	FY 2021 ^{2/}	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
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Inspector General	41.7	44.2	46.0	47.0	48.0	49.1	50.2
NASA Total	22,629.0	23,271.3	24,801.5	25,314.9	25,869.3	26,441.0	27,027.9

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Deep Space Exploration Systems: *Exploration Systems Development*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Exploration Systems Development	4,544.6	4,483.7	4,384.0	4,219.0	3,888.0	3,867.0

- Enables the Artemis goal of landing the first woman and first person of color on the Moon's south pole
- \$1,407 million for the Orion program to finalize assembling and testing the Artemis II crew vehicle and deliver the system to EGS at KSC
- \$2,487 million for Space Launch System (including for development of Block 1B) and upgrades to ensure the safe and reliable completion of the initial Block 1
- \$590 million for Exploration Ground Systems for Mobile Launcher 2 construction and modifications to existing facility and command and control systems



Deep Space Exploration Systems: *Exploration Research and Development*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Exploration Research & Development	1,972.8	2,396.7	2,630.1	3,044.7	3,626.9	3,905.8



- \$785 million for Gateway development to support human lunar landings and surface activities
- \$1,195 million for Human Landing System which will utilize multiple commercial partnerships to develop and deploy the integrated landing systems that will transport the first woman and first person of color to the Moon
- \$92 million for Advanced Cislunar and Surface Capabilities to conduct risk reduction studies to develop strategies and identify technologies for lunar sustainability and future human missions to the Moon and Mars
- \$195 million for Advanced Exploration Systems to continue identifying, addressing, and delivering fundamental technologies to provide astronauts a safe place to live and work in space
- \$130 million for Human Research Program for continued research to mitigate risks to astronaut health during long-duration missions

FY 2022 Budget Request: Space Technology

(\$ in Millions)



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Space Technology

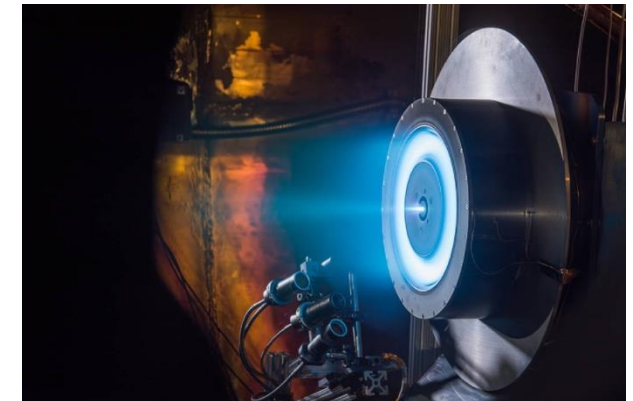


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Space Technology	1,100.0	1,425.0	1,454.5	1,486.4	1,519.2	1,552.9

- \$502 million for Technology Demonstration to enable and enhance research and development at industry and NASA, including OSAM-1, OSAM-2, Cryogenic Fluid Management, Fission Surface Power, DSOC, LOFTID, Solar Electric Power, and others
- \$491 million for Technology Maturation to advance revolutionary disruptive exploration technologies from proof of concept to demonstration, including initial delivery of Lunar Surface Innovative Initiative payloads to the lunar surface by Commercial Lunar Payload Services (CLPS) and initiation of industry and commerce innovation opportunities
- \$145 million for Early Stage Innovation and Partnerships to capitalize on innovation by sourcing ideas from a broad, diverse base of innovators including our brightest minds in academia and transferring space technology into the space economy
- \$287 million for Small Business Innovation Research and Technology Transfer to leverage the Nation's innovative small business community to fund research and development in support of NASA's mission in human exploration, science and aeronautics.



Image Credit: Maxar Technologies



FY 2022 Budget Request: Space Operations

(\$ in Millions)



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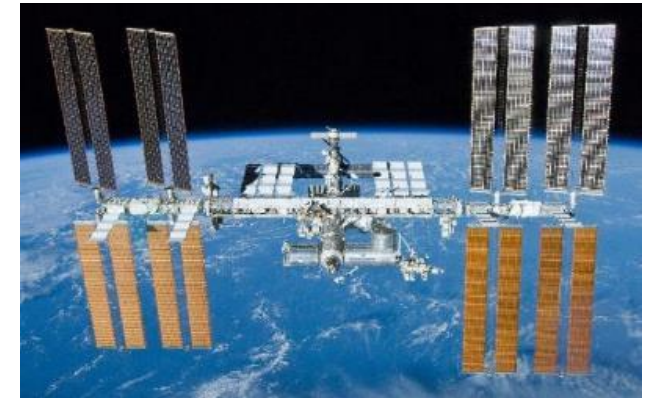
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Space Operations: *International Space Station*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
International Space Station	1,321.6	1,327.6	1,309.7	1,279.4	1,284.5	1,284.5

- \$1,048 million to provide ISS operations to ensure no gap in LEO until commercial LEO destinations are available
- \$279 million for enabling long-duration human deep space exploration via research and technology demonstrations
- Hosts technology demonstrations sponsored by NASA Space Technology, human research activities by the NASA Human Research Program, and basic and Earth research by NASA Science
- Enables development and advancement of a commercial ecosystem in low Earth orbit, including stimulation of non-NASA demand
- Supports above focus areas through use of the National Laboratory by expanding the breadth of researchers and companies using ISS and enabling new public-private partnerships



Space Operations: *Space Transportation*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Space Transportation	1,872.9	1,771.7	1,827.1	1,849.0	1,843.7	1,843.7



- \$1,617 million for the Crew and Cargo Program to provide for a regular cadence of crew rotation and cargo resupply missions to the ISS, contributing to the foundation of a more affordable and sustainable future for American human spaceflight
- \$154 million for Commercial Crew Program to continue NASA's partnership with the U.S. commercial space industry to transport astronauts into space safely, reliably, and affordably from American soil
- Suborbital Crew will develop a system qualification process to enable NASA personnel to leverage suborbital human space transportation capabilities

Space Operations: *Space and Flight Support*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Space and Flight Support	776.6	817.0	786.4	788.8	789.0	789.0

- \$523 million for Space Communications and Navigation to provide mission critical services for human, science, and crew and cargo missions
- \$42 million for Communications Services Program to begin demonstration of commercial services to support future NASA missions
- \$102 million for Human Space Flight Operations to support readiness and crew health for all NASA human space flight endeavors
- \$103 million for Launch Services to provide safe, reliable, and cost-effective launch vehicle acquisition and advisory services for over 70 NASA spacecraft missions in various phases of development
- \$48 million for Rocket Propulsion Test to provide NASA's rocket testing capability to meet US rocket testing requirements

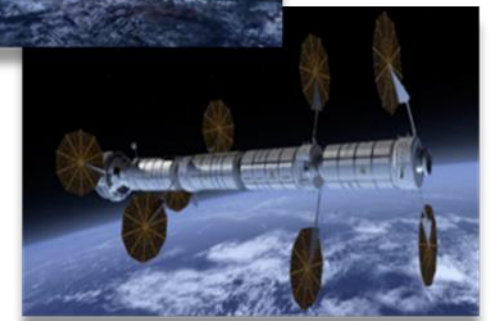


Space Operations: *Commercial LEO Development*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Commercial LEO Development	17.0	101.1	186.1	186.1	186.1	186.1

- Supports early design maturation of multiple commercially-owned and operated LEO destinations (free flyers) from which NASA, along with other customers, can purchase services and stimulate the growth of commercial activities in LEO
- Focuses on maintaining a continuous U.S. human presence in LEO – both with Government astronauts and with private citizens – to support the utilization of space by U.S. citizens, companies, academia, and international partners
- Collaborates with ISS Research to develop and mature the demand side of the LEO economy



*LEO Commercialization Study free flyer concept examples

FY 2022 Budget Request: Science

(\$ in Millions)



Budget Authority (\$M)	FY 2020 ^{1/}	FY 2021 ^{2/}	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Deep Space Exploration Systems	5,959.8	6,517.4	6,880.4	7,014.1	7,263.7	7,514.9	7,772.8
Exploration Systems Development	4,512.8	4,544.6	4,483.7	4,384.0	4,219.0	3,888.0	3,867.0
Exploration Research & Development	1,447.0	1,972.8	2,396.7	2,630.1	3,044.7	3,626.9	3,905.8
Space Technology	1,100.0	1,100.0	1,425.0	1,454.5	1,486.4	1,519.2	1,552.9
Space Operations	4,134.7	3,988.2	4,017.4	4,109.3	4,103.3	4,103.3	4,103.3
International Space Station	1,516.1	1,321.6	1,327.6	1,309.7	1,279.4	1,284.5	1,284.5
Space Transportation	1,746.2	1,872.9	1,771.7	1,827.1	1,849.0	1,843.7	1,843.7
Space and Flight Support	857.4	776.6	817.0	786.4	788.8	789.0	789.0
Commercial LEO Development	15.0	17.0	101.1	186.1	186.1	186.1	186.1
Science	7,143.1	7,300.8	7,931.4	8,095.6	8,272.9	8,455.7	8,643.4
Earth Science	1,971.8	2,000.0	2,250.0	2,343.5	2,398.3	2,573.0	2,702.3
Planetary Science	2,712.6	2,699.8	3,200.0	3,196.3	3,266.5	3,226.9	3,168.7
Astrophysics	1,306.2	1,356.2	1,400.2	1,461.8	1,491.5	1,512.3	1,594.1
Heliophysics	724.5	751.0	796.7	803.3	816.6	833.6	858.5
James Webb Space Telescope	423.0	414.7	175.4	172.5	172.0	172.0	172.0
Biological and Physical Sciences	5.0	79.1	109.1	118.1	128.0	137.9	147.8
Aeronautics	783.9	828.7	914.8	933.7	954.1	975.2	996.8
STEM Engagement	120.0	127.0	147.0	150.0	153.3	156.7	160.2
Safety, Security, and Mission Services	2,913.3	2,936.5	3,049.2	3,112.3	3,180.5	3,250.8	3,323.0
Mission Services & Capabilities	1,849.7	1,918.3	2,028.8	2,070.8	2,113.7	2,157.6	2,202.4
Engineering, Safety, & Operations	1,063.6	1,018.2	1,020.4	1,041.5	1,066.8	1,093.2	1,120.6
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Construction of Facilities	357.8	370.4	315.6	322.2	329.3	336.7	344.2
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Inspector General	41.7	44.2	46.0	47.0	48.0	49.1	50.2
NASA Total	22,629.0	23,271.3	24,801.5	25,314.9	25,869.3	26,441.0	27,027.9

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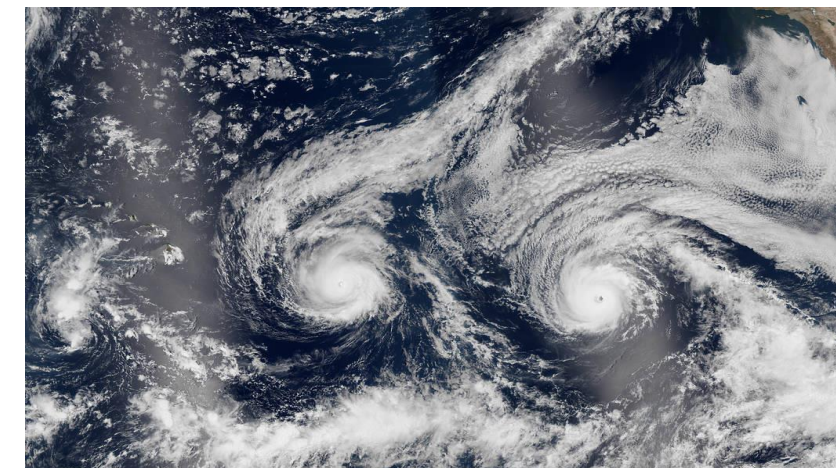
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Science: *Earth Science*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Earth Science	2,000.0	2,250.0	2,343.5	2,398.3	2,573.0	2,702.3

- Initiates the Earth System Observatory to enhance understanding of Earth systems and to observe the effects of climate change
 - Development of four core strategic missions for launch in this decade
 - Implements the competitive Earth System Explorers Program
- Continues development of high priority missions such as PACE, CLARREO Pathfinder, and Landsat 9
- Enhances capabilities in Earth Data Systems to support large data volume of upcoming missions and new capabilities in AI/ML
- Supports current Venture class missions and stable cadence of new selections
- Acquires Earth Science observation data from commercial SmallSat constellations to augment or complement observations acquired by NASA

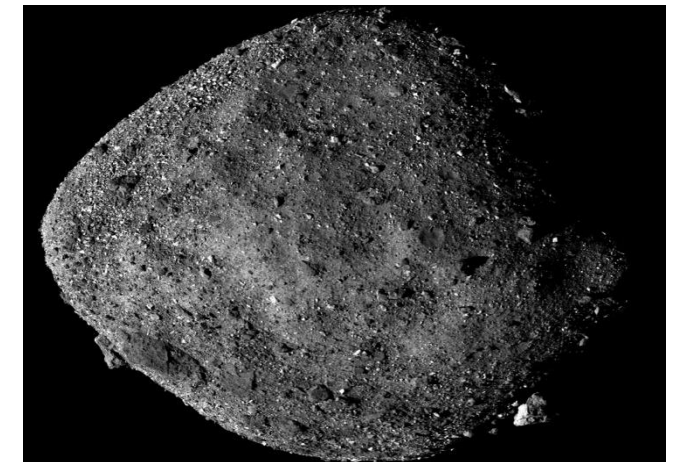


Science: *Planetary Science*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Planetary Science	2,699.8	3,200.0	3,196.3	3,266.5	3,226.9	3,168.7

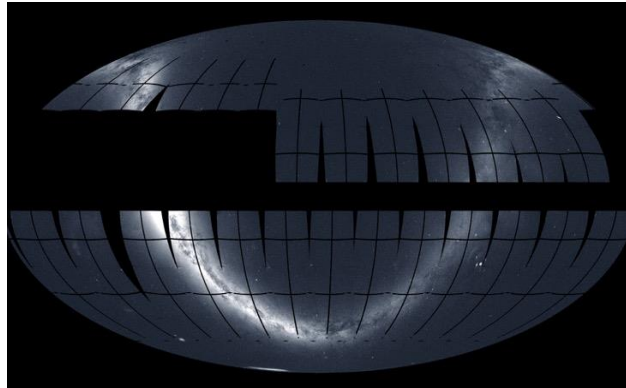
- \$497 million for the Lunar Discovery and Exploration program which partners with industry to deliver to the Moon instruments and other payloads, including the VIPER mission, a lunar rover to investigate volatiles on the South Pole of the Moon
- \$653 million to supports the Mars Sample Return mission launch and begins planning for the Mars Ice Mapper
- \$143 million for the Near-Earth Objects Surveyor to accelerate detection of potentially hazardous asteroids
- Continues robust competitive Discovery and New Frontiers programs including development of the Lucy, Psyche and Dragonfly missions



Science: *Astrophysics*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Astrophysics	1,356.2	1,400.2	1,461.8	1,491.5	1,512.3	1,594.1



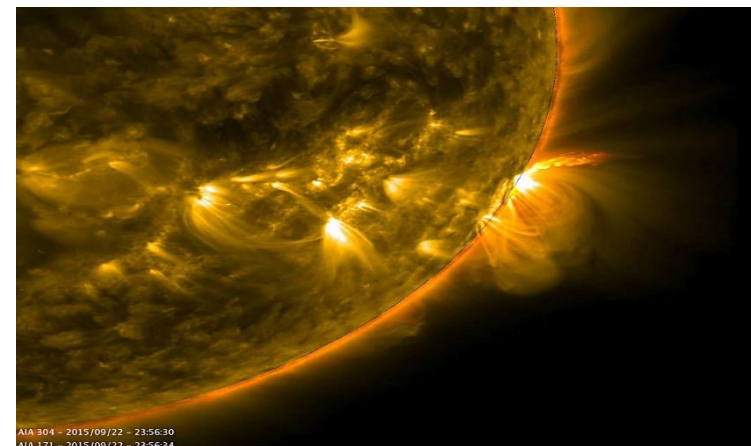
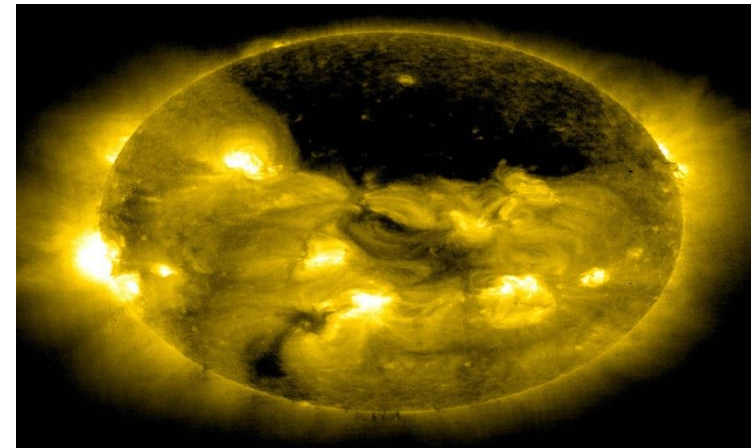
- Operates Great Observatories, such as the Hubble Space Telescope and the Chandra X-ray Observatory, along with 7 other operating missions
- \$502 million for development of the Nancy Grace Roman Space telescope, designed to unravel the secrets of dark energy and dark matter, search for and image exoplanets, and explore many topics in infrared astrophysics
- Supports a robust Explorer program, recent selections include XRISM, SPHEREx and CASE, also provides four announcements of opportunities per decade, also includes Explorer Pioneers to support small platform investigations
- Supports initiation of a probe-class mission in FY 2022 pending Decadal Survey recommendations
- Proposes termination and orderly shutdown of SOFIA, the second-most expensive operating mission in the Astrophysics Division, to focus on higher priority science

Science: *Heliophysics*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Heliophysics	751.0	796.7	803.3	816.6	833.6	858.5

- Advances Heliophysics with new, innovative missions– a historic number of missions on orbit and in development
 - Supports development of the Interstellar Mapping and Acceleration Probe (IMAP) and the Geospace Dynamics Constellation missions
 - Supports a robust cadence of PI-led Explorer selections and missions of opportunity: Solar Cruiser, GLIDE, EZIE, EUVST
 - Continues operation of 18 missions, including ICON, Parker Solar Probe, and Solar Orbiter Collaboration
- Enhances innovation via the use of CubeSats/SmallSats, an enhanced rideshare program, and a focused Heliophysics Technology Program
- Improves NASA’s capability to study and predict space weather to protect our astronauts, our satellites, and technology on Earth; provides a space weather instrument, HERMES, for the Artemis Gateway



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Science: *James Webb Space Telescope*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
James Webb Space Telescope	414.7	175.4	172.5	172.0	172.0	172.0

- James Webb will look further back in time than ever before by exploring the infrared spectrum
- Completes integration and test activities
- Transports Webb to the launch site in Kourou, French Guiana
- Supports October 31, 2021 launch readiness date and start of science operations in May 2022
- Supports guest observer awards and science after initial on orbit capability



Science: *Biological and Physical Sciences*



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Biological and Physical Sciences	79.1	109.1	118.1	128.0	137.9	147.8

- Provides a \$30 million increase in FY 2022 to accelerate transformative science at the frontiers of biological and physical sciences research in space
- Commissioned NASEM to conduct the second Decadal Survey for biological and physical sciences for 2023-2032
- Continued annual solicitations of Space Biology and Physical Sciences research
- Planning for a broad range of research platforms from ground to spaceflight with emphasis on ISS to drive advances in science, technology, and space exploration



FY 2022 Budget Request: Aeronautics

(\$ in Millions)



Budget Authority (\$M)	FY 2020 ^{1/}	FY 2021 ^{2/}	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Deep Space Exploration Systems	5,959.8	6,517.4	6,880.4	7,014.1	7,263.7	7,514.9	7,772.8
Exploration Systems Development	4,512.8	4,544.6	4,483.7	4,384.0	4,219.0	3,888.0	3,867.0
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Heliophysics	724.5	751.0	796.7	803.3	816.6	833.6	858.5
James Webb Space Telescope	423.0	414.7	175.4	172.5	172.0	172.0	172.0
Biological and Physical Sciences	5.0	79.1	109.1	118.1	128.0	137.9	147.8
Aeronautics	783.9	828.7	914.8	933.7	954.1	975.2	996.8
STEM Engagement	120.0	127.0	147.0	150.0	153.3	156.7	160.2
Safety, Security, and Mission Services	2,913.3	2,936.5	3,049.2	3,112.3	3,180.5	3,250.8	3,323.0
Mission Services & Capabilities	1,849.7	1,918.3	2,028.8	2,070.8	2,113.7	2,157.6	2,202.4
Engineering, Safety, & Operations	1,063.6	1,018.2	1,020.4	1,041.5	1,066.8	1,093.2	1,120.6
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NASA Total	22,629.0	23,271.3	24,801.5	25,314.9	25,869.3	26,441.0	27,027.9

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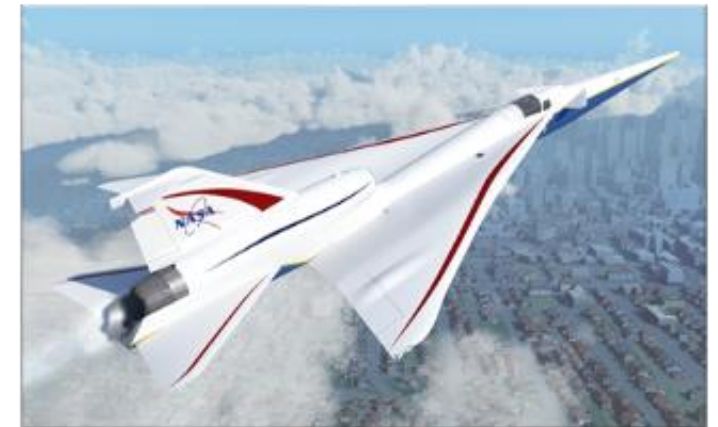
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Aeronautics



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Aeronautics	828.7	914.8	933.7	954.1	975.2	996.8

- \$302 million for Integrated Aviation Systems to support the X-59 Low Boom Flight Demonstrator, X-57 Maxwell all-electric aircraft, and early designs of a Sustainable Flight Demonstrator
- \$244 million for Advanced Air Vehicles to conduct research to meet the nation’s growing long-term civil aviation needs such as more efficient aircraft and propulsion technologies to reduce aviation’s carbon footprint
- \$148 million for Transformative Aero Concepts to support revolutionary aviation concepts, including research on zero-emissions aviation
- \$105 million for Airspace Operations and Safety to work with the Federal Aviation Administration to modernize and transform the national air traffic management system
- \$117 million for Aerosciences Evaluation and Test Capabilities, supporting critical national ground test infrastructure
- Includes an overall \$86.1 million increase over FY 2021 enacted levels to accelerate and augment planned green aviation initiatives across these programs.



X-59 Low Boom Flight Demonstrator



Trussed-Braced Wing

FY 2022 Budget Request: STEM Engagement

(\$ in Millions)



Budget Authority (\$M)	FY 2020 ^{1/}	FY 2021 ^{2/}	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Deep Space Exploration Systems	5,959.8	6,517.4	6,880.4	7,014.1	7,263.7	7,514.9	7,772.8
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STEM Engagement



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
STEM Engagement	127.0	147.0	150.0	153.3	156.7	160.2

- OSTEM is funded \$20 million over the FY 2021 enacted with notable increases in both Space Grant (\$57 million,+\$6 million over FY21) and MUREP (\$48 million,+\$10 million over FY21 enacted)
- Invests in the Nation's next generation of scientists, engineers, technologists, mathematicians and explorers
- Creates unique opportunities for a diverse set of students, and engages students in unique, authentic learning experiences that contribute to building a diverse future STEM workforce
- Continues to enhance the NASA internships program, incorporating strategies to contribute to the Agency's diversity, equity and inclusion priority
- Expands initiatives to attract and retain underserved and underrepresented students in STEM fields



FY 2022 Budget Request: SSMS and CECR

(\$ in Millions)



Budget Authority (\$M)	FY 2020 ^{1/}	FY 2021 ^{2/}	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
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Safety, Security, and Mission Services



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Safety, Security, and Mission Services	2,936.5	3,049.2	3,112.3	3,180.5	3,250.8	3,323.0



- SSMS enables all of NASA's missions by providing foundational support capabilities paramount to achieving NASA's goals
- SSMS provides strategic direction and integration of essential business and technical functions at all NASA Centers across the nation
- \$612 million for Information Technology including Cyber Security
- \$732 million for Mission Enabling Services critical to all NASA Missions
- \$685 million for Infrastructure and Technical Capabilities across the Nation
- \$187 million for Agency Technical Authority to ensure safety and mission success
- \$834 million for Engineering, Safety, and Operations for all NASA Centers

Construction & Environmental Compliance & Restoration



Budget Authority (\$M)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Construction & Environmental Compliance & Restoration	421.5	390.3	398.4	407.1	416.1	425.3

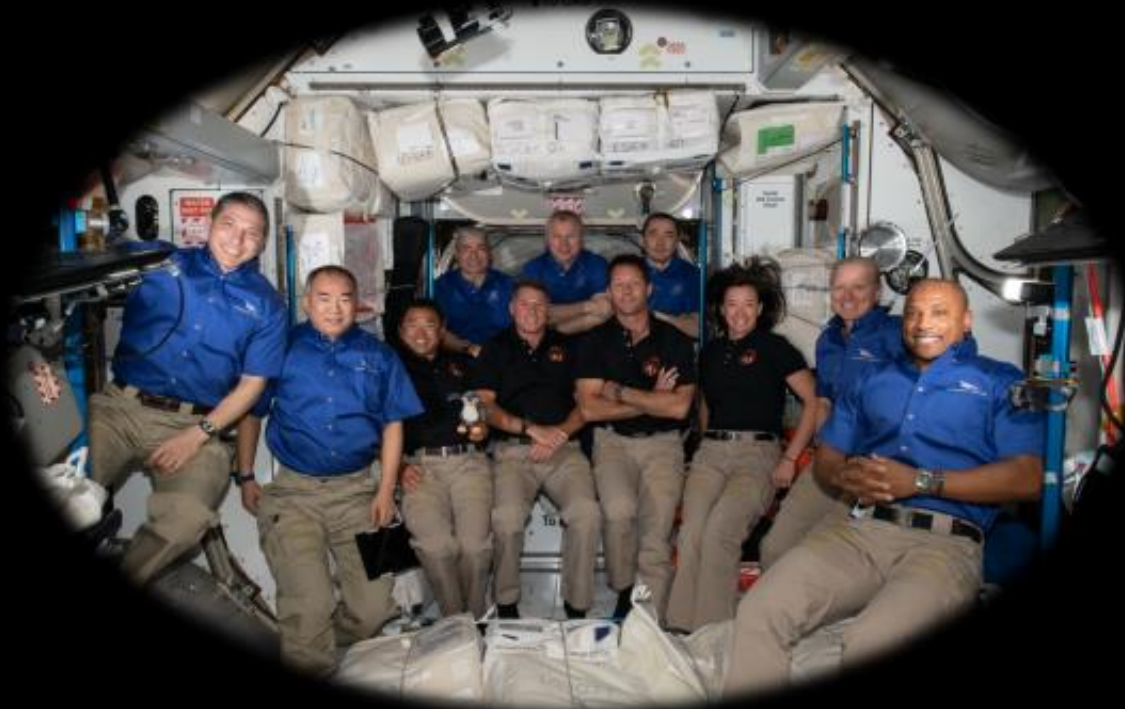
- \$206 million to construct, repair, or revitalize institutional infrastructure that have capabilities across all centers
- \$89 million to support Exploration mission work
- \$21 million to support Space Operations mission work
- \$75 million to maintain NASA's commitment to environmental stewardship
- NASA continues to balance maintenance, repair, and construction activities in context of a growing backlog of deferred maintenance

Category	Definition	Example
Repair	Fix something broken or degraded to restore function.	
Modernization	Revitalize existing and outdated infrastructure with upgrades/updates that improve outcomes and reduce risks.	
Recapitalization	Replace degraded facilities and consolidate to new facilities, leading to demolition and footprint reduction.	
New Capability	Construct new capabilities that enable next-generation discoveries and advances.	<p>LaRC Flight Dynamics Research Facility <i>(artist rendering of the coming project)</i></p>

CECR construction and repair activities are balanced with SSMS maintenance activities to ensure mission success.

FY22 Request Strengthens NASA's Leadership

- Increases investments in climate research and science programs
- Partners with U. S. industry to build a Human Landing System to land the first woman and the first person of color on the Moon
- Enhances U. S. competitiveness in the global aviation industry including first flights of two new X-vehicles



- Invests in technologies that enhance NASA's missions and foster the space economy
- Invests in space infrastructure and reaffirming the U.S. as the world's premier partner in space collaboration for decades to come
- Leverages the Agency's unique mission to inspire students in STEM



Appendix



Acronyms (1 of 3)

- AWE - Atmospheric Waves Experiment
- CCtCap – Commercial Crew Transportation Capability
- CECR – Construction and Environmental Compliance and Restoration
- CFM – Cryogenic Fluid Management
- CLARREO PF - Climate Absolute Radiance and Refractivity Observatory Pathfinder
- CLPS – Commercial Lunar Payload Services
- CLV – Commercial Launch Vehicle
- CRS – Commercial Resupply Services
- DART - Double Asteroid Redirection Test
- Disc -Discovery
- DO - Designated Observables
- DSAC - Deep Space Atomic Clock
- DSOC - Deep Space Optical Communications
- EGS – Exploration Ground Systems
- ESD – Exploration Systems Development
- EVC - Earth Venture Continuity
- EVI – Earth Venture Instrument
- EVM – Earth Venture Mission
- EVS - Earth Venture Suborbital
- EVS - Earth Venture Suborbital
- GeoCarb - Geostationary Carbon Observatory
- GOES-T - Geostationary Operational Environmental Satellite system
- GUSTO - Galactic/Extragalactic ULDB Spectroscopic Terahertz Observatory
- HEOMD - Human Exploration and Operations Mission Directorate
- HLS – Human Landing System
- ICON - Ionospheric Connection Explorer

Acronyms (2 of 3)



- ICPS - Interim Cryogenic Propulsion Stage
- IMAP - Interstellar Mapping and Acceleration Probe
- ISRU - In-Situ Resource Utilization
- ISS – International Space Station
- IT – Information Technology
- IXPE - Imaging X-ray Polarimetry Explorer
- JPSS-2 - Joint Polar Satellite System-2
- JUICE - Jupiter Icy Moons Explorer
- KSC – Kennedy Space Center
- LBFD – Low Boom Flight Demonstrator
- LCRD – Laser Communications Relay Demonstration
- LEO – Low-Earth Orbit
- LOFTID - Low-Earth Orbit Flight Test of an Inflatable Decelerator
- LRO – Lunar Reconnaissance Orbiter
- MAF – Michoud Assembly Facility
- MAIA - Multi-Angle Imager for Aerosols
- MEDLI – Mars Entry Descent and Landing Instrumentation
- MEGANE - Mars-moon Exploration with GAMMA rays and Neutrons
- MIDEX - Medium-Class Explorers
- MoO - Missions of Opportunity
- MSD – Mission Support Directorate
- MSFC – Marshall Space Flight Center
- NEOSM – Near-Earth Object Surveillance Mission
- NG – Northrop Grumman
- NISAR - NASA-ISRO Synthetic Aperture Radar
- OMPS-L – Ozone Mapping and Profiler Suite-Limb
- OSAM - On-orbit Servicing, Assembly, and Manufacturing

Acronyms (3 of 3)



- PACE - Plankton, Aerosol, Cloud, ocean Ecosystem
- PCM – Post Certification Mission
- PREFIRE - Polar Radiant Energy in the Far-InfraRed Experiment
- PUNCH - Polarimeter to Unify the Corona and Heliosphere
- R&D – Research and Development
- SEP - Solar Electric Propulsion
- SLS - Space Launch System
- SMD – Science Mission Directorate
- SMEX - Small Explorers
- SNC – Sierra Nevada Corporation
- SOFIA - Stratospheric Observatory for Infrared Astronomy
- SPHEREx - Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer
- SSC – Stennis Space Center
- SSMS – Safety, Security, and Mission Services
- STEM - Science, Technology, Engineering, and Mathematics
- STMD – Space Technology Mission Directorate
- SWOT - Surface Water and Ocean Topography
- TDM – Technology Demonstration Mission
- TEMPO - Tropospheric Emissions: Monitoring Pollution
- TRACERS - Tandem Reconnection and Cusp Electrodynamics Reconnaissance Satellites
- TRN – Terrain Relative Navigation
- TROPICS - Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Smallsats
- TSIS - Total and Spectral Solar Irradiance Sensor
- UAM – Urban Air Mobility
- VIPER - Volatiles Investigating Polar Exploration Rover
- WFIRST - Wide Field Infrared Survey Telescope
- XRISM - X-ray Imaging and Spectroscopy Mission