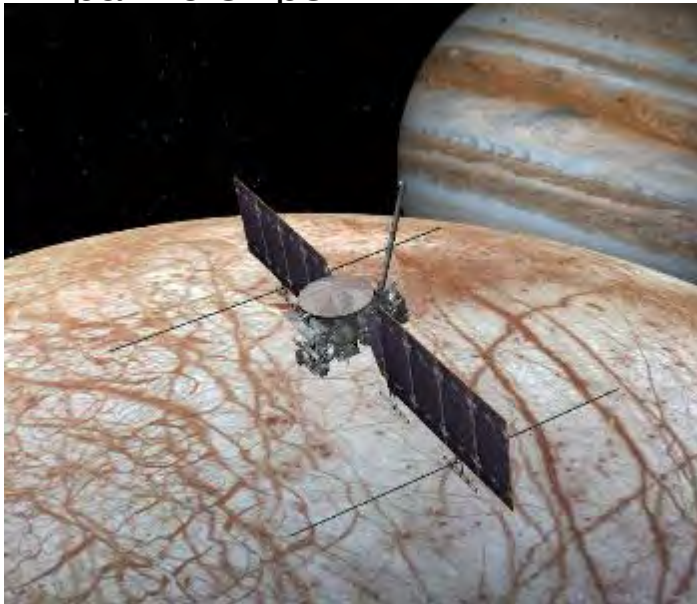


Science: Planetary Science



(\$M)	2019	2020	2021	2022	2023
Planetary Science	\$2,235	\$2,200	\$2,181	\$2,162	\$2,143

- Creates a robotic Lunar Discovery and Exploration program, that supports commercial partnerships and innovative approaches to achieving human and science exploration goals.
- Continues development of Mars 2020 and Europa Clipper.
- Establishes a Planetary Defense program, including the Double Asteroid Redirection Test (DART) and Near-Earth Object Observations.
- Studies a potential Mars Sample Return mission incorporating commercial partnerships.



- Formulates the Lucy and Psyche missions.
- Selects the next New Frontiers mission.
- Invests in CubeSats/SmallSats that can achieve entirely new science at lower cost.
- Operates 10 Planetary missions.
 - OSIRIS-REx will map asteroid Bennu.
 - New Horizons will fly by its Kuiper belt target.

Science: Astrophysics



(\$M)	2019	2020	2021	2022	2023
Astrophysics	\$1,185	\$1,185	\$1,185	\$1,185	\$1,185



- Launches the James Webb Space Telescope.
- Moves Webb into the Cosmic Origins Program within the Astrophysics Account.
- Terminates WFIRST due to its significant cost and higher priorities elsewhere within NASA. Increases funding for future competed missions and research.

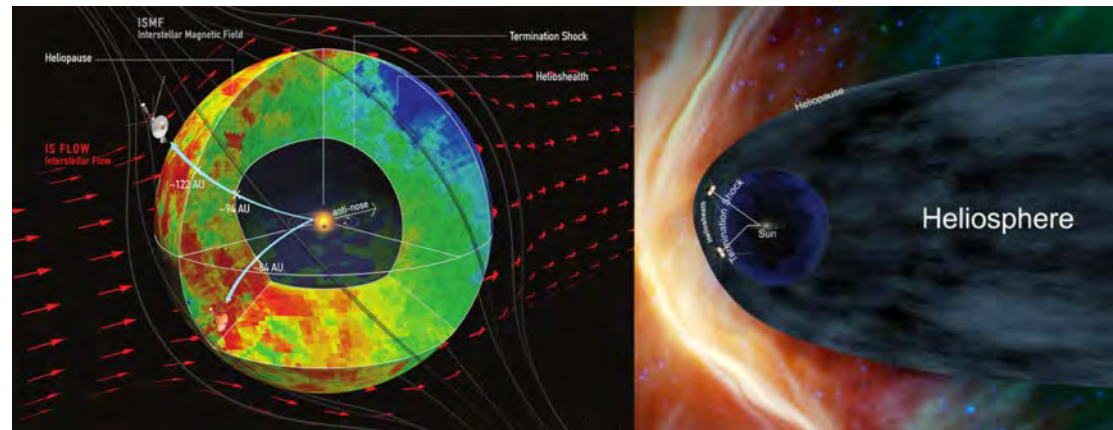
- Supports the TESS exoplanet mission following launch by June 2018.
- Formulates or develops, IXPE, GUSTO, XARM, Euclid, and a new MIDEX mission to be selected in FY 2019.
- Operates ten missions and the balloon project.
- Invests in CubeSats/SmallSats that can achieve entirely new science at lower cost.
- All Astrophysics missions beyond prime operations (including SOFIA) will be subject to senior review in 2019.

Science: Heliophysics



(\$M)	2019	2020	2021	2022	2023
Heliophysics	\$691	\$691	\$691	\$691	\$691

- Continues support of Parker Solar Probe, Ionospheric Connection Explorer (ICON), readying for launch in FY 2018 and recently launched Global-scale Observations of the Limb and Disk (GOLD).
- Continues Solar Orbiter Collaboration (SOC) partnership with ESA.
- Includes a \$3 million increase for collaborating with other agencies to improve space weather observation and forecasting capabilities.
- Invests in CubeSats/SmallSats that can achieve entirely new science at lower cost.
- Supports the Sounding Rockets and CubeSat projects.
- Operates 17 additional missions.



Aeronautics

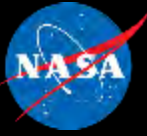


(\$M)	2019	2020	2021	2022	2023
Aeronautics	\$634	\$609	\$609	\$609	\$609

- Completes a critical design review of the Low Boom Flight Demonstrator X-Plane that will demonstrate quiet overland supersonic flight, which enables a new market for U.S. industry.
- Increases funding for hypersonic fundamental research which will enhance development of tools and methods to more efficiently design future hypersonic vehicles
- Continues to develop and mature key promising subsonic aircraft technologies that dramatically reduce fuel consumption, noise, and emissions.
- Advances electric propulsion systems by flight testing an all electric aircraft, the X-57.
- Develops and tests key technologies that will integrate UAS operations in the National Air Space, as well as realize safe, low-altitude operations of small UAS.
- Demonstrates new air traffic management tools that integrate aircraft arrival, departure, and airport surface operations to reduce flight delays and increase air traffic capacity and safety.
- Completes the Advanced Composites project which will deliver a variety of computational tools and guidance that will significantly reduce the time needed to develop and certify new



Education



- Proposes to terminate NASA's Office of Education, including its portfolio of grants and cooperative agreements and redirects funds to NASA's core mission of exploration. NASA headquarters will continue to be accountable for strategic direction and coordination of the agency's STEM engagement efforts.
- Continues internships, fellowships, and outreach activities funded outside the Office of Education.
- SMD's Science Activation program will continue to focus on delivering SMD content to learners of all ages through cooperative agreement awards.

Safety, Security, and Mission Services and Construction



(\$M)	2019	2020	2021	2022	2023
SSMS	\$2,750	\$2,745	\$2,739	\$2,732	\$2,726
Construction & ECR	\$388	\$294	\$294	\$294	\$294

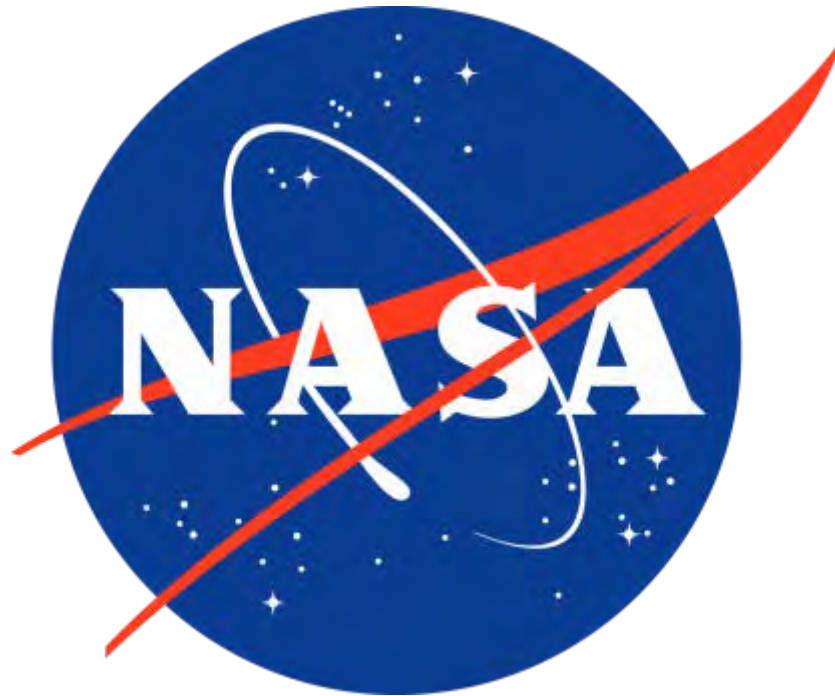
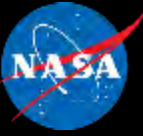
➤ Safety, Security, and Mission Services

- Funds ongoing operations of NASA Centers and major component facilities to achieve a safe, healthy, and environmentally responsible workplace.
- Provides independent technical and safety oversight of NASA missions and operations.
- Ensures core services are ready and available for performing mission roles and responsibilities by optimizing acquisition, human capital management, budget management, and facilities management to maintain a minimum set of capabilities.
- Provides strategic IT investments to improve security, reduce costs, and increase efficiency by modernizing systems, increasing automation, and delivering affordable enterprise-wide solution.
- Strengthens cybersecurity capabilities by safeguarding critical systems and data plus continues to support improved overall management of IT.



➤ Construction and Environmental Compliance and Restoration

- Funds repair, revitalization, demolition, and recapitalization projects that reduce the Agency's footprint and provide efficient, modernized facilities.
- Invests in energy savings projects to reduce utility usage and costs.
- Constructs new or modified facilities to conduct NASA's program missions.
- Manages NASA's environmental clean-up responsibilities.



Organizational and Budget Alignment



NASA will restructure the Agency to align with the Administration's *Exploration Campaign* focus. NASA will assess options and be prepared for implementation at the start of FY 2019.

NASA is proposing several budget structure changes to align with its Exploration focus and reorient space technology to serve exploration needs:

- Exploration account is renamed Deep Space Exploration Systems
- Exploration Research and Development Theme goes away and is replaced by Advanced Exploration Systems Theme
 - ER&D content is dispersed to: AES (habitats, Lunar Orbiting platform - gateway) and ER&T account (some of AES and HRP)
- Space Technology account plus HRP and elements of AES is merged into the new Exploration Research and Technology account
- Space Operations account is renamed LEO and Space Flight Operations with same content plus new Commercial LEO development theme.

Acronyms



- AES: Advanced Exploration Systems
- CRS: Cargo Resupply Services
- DART: Double Asteroid Redirection Test
- DSAC: Deep Space Atomic Clock
- DSG: Deep Space Gateway
- ECOSTRESS: Ecosystem Spaceborne Thermal Radiometer Experiment on Space Station
- EGS: Exploration Ground Systems
- EVI: Earth Venture Instrument
- EVM: Earth Venture Mission
- EVS: Earth Venture Sub-Orbital solicitation
- GEDI: Global Ecosystem Dynamics Investigation
- GeoCarb: Geostationary Carbon Cycle Observatory
- GOES: Geostationary Operational Environmental Satellite
- GOLD: Global Scale Observations of the Limb and Disk
- GPIM: Green Propellant Infusion Mission
- GRACE-FO: Gravity Recovery and Climate Experiment – Follow-On
- GUSTO: Galactic/extragalactic ULDB Spectroscopic Terahertz Observatory
- ICESat: Ice Cloud and Land Elevation Satellite
- ICON: Ionospheric Connection Explorer
- ICPS: Interim Cryogenic Propulsion Stage
- ISS: International Space Station
- IXPE: Imaging X-ray Polarimetry Explorer
- JPSS: Joint Polar Satellite System
- JUICE: Jupiter Icy Moons Explorer
- JWST: James Webb Space Telescope
- Lbfd: Low-Boom Flight Demonstration
- LCRD: Laser Communications Relay Demonstration
- LEO: Low-Earth Orbit
- LVSA: Launch Vehicle Stage Adapter
- LWS: Living With a Star
- MAIA: Multi-Angle Imager for Aerosols
- MEDA: Mars Environmental Dynamics Analyzer
- MEDLI2: Mars Entry, Descent, and Landing Instrumentation 2
- MetOp – Meteorological Operational Satellite
- MoO: Missions-of-Opportunity
- MOXIE: Mars Oxygen In-Situ Resource Utilization Experiment
- NextSTEP: Next Space Technologies for Exploration Partnership
- NISAR: NASA-ISRO Synthetic Aperture Radar
- OMPS: Ozone Mapping Profiler Suite
- OSIRIS-Rex: Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer
- PSP: Parker Solar Probe
- SBIR: Small Business Innovation Research
- SLS: Space Launch System
- SMD: Science Mission Directorate
- SMEX: Small Explorer class
- SOC: Solar Orbiter Collaboration
- STEM: Science, Technology, Engineering and Mathematics
- STP: Solar Terrestrial Probes
- STTR: Small business Technology Transfer
- SWOT: Surface Water and Ocean Topography
- TDM: Technology Demonstration Mission
- TEMPO: Tropospheric Emissions Monitoring of Pollution
- TESS: Transiting Exoplanet Survey Satellite
- 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
- UAS: Unmanned Aircraft Systems
- XARM: X-ray Astronomy Recovery Mission
- WFIRST: Wide Field Infra Red Survey telescope (AFTA: Astrophysics Focused Telescope Assets)