

NASA FY 2019 Initial Operating Plan  
**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION FY 2019 SPENDING PLAN**  
**APPROPRIATIONS PROVIDED BY P.L. 116-006**

Enclosure 1  
 June 2019

June 2019

(Budget Authority, \$ in millions)

	FY 2019 NASA Spending Plan
<b>NASA</b>	<b>21,500.0</b>
<b>SCIENCE</b>	<b>6,895.6</b>
Earth Science	1,931.0
<u>Earth Science Research</u>	454.1
Earth Science Research & Analysis.....	316.5
<i>Carbon Monitoring (non-add)***</i> .....	10.0
Computing & Management.....	137.6
<u>Earth Systematic Missions</u>	932.7
Ice, Cloud, and Land Elevation Satellite - 2.....	22.2
NASA/ISRO SAR (NISAR).....	134.6
GRACE FO.....	1.3
Surface Water and Ocean Topography.....	109.1
Sentinel-6.....	70.4
Landsat 9.....	137.4
Other Missions and Data Analysis.....	457.7
<i>Pre-Aerosol, Clouds, and Ocean Ecosystem (PACE) (non-add)</i> .....	161.0
<i>Climate Absolute Radiance Refractivity Observatory Pathfinder (non-add)</i> .....	18.0
<i>Deep Space Observatory (non-add)</i> .....	0.7
<u>Earth Science Pathfinder</u>	223.8
Venture Class Missions.....	163.5
Other Missions and Data Analysis.....	60.2
<i>Orbiting Carbon Observatory (OCO-3) (non-add)</i> .....	6.5
<i>Small Satellite Constellation Initiative (non-add)</i> .....	19.0
<u>Earth Science Multi-Mission Operations</u>	202.0
<u>Earth Science Technology</u>	63.4
<u>Applied Sciences: Pathways</u>	55.1
Planetary Science	2,748.4
<u>Planetary Science Research</u>	236.4
Planetary Science Research & Analysis.....	195.7

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Other Missions & Data Analysis.....	40.7
<u>Planetary Defense</u>	<u>150.0</u>
DART.....	98.0
Planetary Defense OM&DA.....	52.0
<i>Near Earth Object Camera (NEOcam) (non-add)***</i> .....	12.0
<u>Lunar Discovery and Exploration**</u>	<u>188.0</u>
Other Missions & Data Analysis.....	188.0
<i>Lunar Reconnaissance Orbiter (LRO) (non-add)</i> .....	22.0
<u>Discovery</u>	<u>409.5</u>
InSight.....	23.1
Lucy.....	165.5
Psyche.....	174.2
Other Missions & Data Analysis.....	46.7
<u>New Frontiers</u>	<u>120.4</u>
<i>Juno (non-add)</i> .....	16.7
<u>Mars Exploration</u>	<u>690.0</u>
Mars Rover 2020.....	462.6
Other Missions & Data Analysis.....	227.4
<i>Mars Future Missions (non-add)</i> .....	35.0
<i>Mars Helicopter (non-add)</i> .....	10.0
<u>Outer Planets</u>	<u>755.6</u>
Europa Clipper.....	545.0
Other Missions & Data Analysis.....	210.6
<i>Europa Lander (non-add)</i> .....	187.4
<u>Technology</u>	<u>198.5</u>
<i>DOE Operations and Analysis (non-add)</i> .....	83.0
<i>Icy Satellites Surface Technology (non-add)</i> .....	35.0
<i>Mars Helicopter (non-add)</i> .....	-
<b>Astrophysics</b>	<b>1,191.6</b>
<u>Astrophysics Research</u>	<u>222.8</u>
Astrophysics Research & Analysis.....	83.4

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Balloon Project.....	40.2
STEM Activation.....	45.0
Other Missions & Data Analysis.....	54.2
<u>Cosmic Origins</u>	<u>222.8</u>
Hubble Space Telescope.....	98.3
Stratospheric Observatory for Infrared Astronomy.....	85.2
Other Missions & Data Analysis.....	39.3
<i>Search for Life Tech Development (non-add)</i> .....	10.0
<u>Physics of the Cosmos: Other Missions &amp; Data Analysis</u>	<u>151.2</u>
<u>Exoplanet Exploration</u>	<u>367.9</u>
<i>WFIRST/AFTA (non-add)</i> ***.....	312.2
<i>Starshade Tech Development (non-add)</i> .....	10.0
<u>Astrophysics Explorer</u>	<u>227.0</u>
Transiting Exoplanet Survey Satellite (TESS).....	7.7
Other Missions & Data Analysis.....	219.3
James Webb Space Telescope	304.6
Heliophysics	720.0
<u>Heliophysics Research</u>	<u>248.9</u>
Heliophysics Research & Analysis.....	71.2
Sounding Rockets.....	61.1
Research Range.....	30.0
Other Missions & Data Analysis.....	86.7
<u>Living With a Star</u>	<u>177.8</u>
Parker Solar Probe (formerly Solar Probe Plus).....	20.0
Solar Orbiter Collaboration.....	62.3
Other Missions & Data Analysis.....	95.5
<i>Space Weather Science Applications (non-add)</i> .....	20.0
<u>Solar Terrestrial Probes</u>	<u>145.3</u>
<u>Heliophysics Explorer</u>	<u>147.9</u>

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<b>AERONAUTICS</b>	<b>719.2</b>
Aeronautics	719.2
<u>Airspace Operations and Safety Program</u>	105.7
<u>Advanced Air Vehicles Program</u>	266.5
<i>Hypersonics Technology Project (non-add).....</i>	35.0
<u>Integrated Aviation Systems Program</u>	209.6
<u>Transformative Aero Concepts Program</u>	137.4
<b>SPACE TECHNOLOGY</b>	<b>926.9</b>
Space Technology	926.9
<u>Early Stage Innovation and Partnerships</u>	101.7
Agency Technology and Innovation.....	8.8
Early Stage Innovation.....	66.5
Partnerships and Technology Transfers.....	26.4
<u>Technology Maturation</u>	201.2
<i>Regional Economic Development (non-add).....</i>	5.0
<i>Nuclear Propulsion (non-add)***.....</i>	100.0
<i>Innovative Nano Materials (non-add).....</i>	5.0
<i>Additive Manufacturing (non-add).....</i>	35.0
<u>Technology Demonstration</u>	416.8
Laser Communication Relay Demonstration.....	17.2
RESTORE/In-Space Robotic Servicing.....	180.0
<i>RESTORE-L (non-add).....</i>	180.0
Solar Electric Propulsion (SEP).....	48.1
Small Spacecraft, Flight Opportunities & Other Tech Demonstration.....	171.5
<i>Flight Opportunities (non-add).....</i>	20.0
<i>Technology Challenges/small Satellites (non-add).....</i>	2.0
<u>SBIR &amp; STTR</u>	207.2
<b>EXPLORATION</b>	<b>5,050.8</b>
Human Exploration Capabilities	4,092.8
<u>Orion Multi-Purpose Crew Vehicle: Crew Vehicle Dev.</u>	1,350.0

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<u>Space Launch System</u>	2,150.0
SLS Program Integration.....	50.9
Launch Vehicle Development.....	2,099.1
<i>Enhanced Upper Stage (EUS) development (non-add)***</i> .....	150.0
<u>Exploration Ground Systems</u>	592.8
2nd Mobile Launch Platform (non-add).....	48.0
<b>Exploration Research &amp; Development</b>	<b>958.0</b>
<u>Advanced Exploration Systems</u>	331.5
<u>Gateway</u>	365.0
<i>Habitation Element (non-add).....</i>	176.2
<u>Adv Cislunar and Surface Capabilities**</u>	116.5
<u>Human Research Program</u>	145.0
<b>SPACE OPERATIONS</b>	<b>4,640.9</b>
<b>International Space Station</b>	<b>1,490.3</b>
<u>International Space Station Program</u>	1,490.3
ISS Systems Operations & Maintenance.....	1,085.3
ISS Research.....	405.0
<b>Space Transportation</b>	<b>2,109.7</b>
<u>Crew and Cargo Program</u>	1,895.6
<u>Commercial Crew Program</u>	214.1
<b>Space &amp; Flight Support</b>	<b>1,000.9</b>
<u>21<sup>st</sup> Century Space Launch Complex</u>	15.0
<u>Space Communications &amp; Navigation</u>	704.4
Space Communications Networks.....	600.9
Space Communications Support.....	103.5
<u>Human Space Flight Operations</u>	133.1
<u>Launch Services</u>	88.4
<u>Rocket Propulsion Test**</u>	60.0

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Commercial LEO Development	40.0
<b>STEM Engagement</b>	<b>110.0</b>
STEM Engagement	110.0
<u>STEM Engagement Program</u>	110.0
NASA Space Grant.....	44.0
EPSCoR.....	21.0
Minority University Research Education Program.....	33.0
STEM Education & Accountability Projects.....	12.0
<i>CP3 Competitive Program (non-add)***</i> .....	5.0
<b>SAFETY, SECURITY AND MISSION SERVICES</b>	<b>2,755.0</b>
Center Management & Operations	1,946.4
<u>Center Institutional Capabilities</u>	1,506.3
<u>Center Programmatic Capabilities</u>	440.1
Agency Management & Operations	808.6
<u>Agency Management</u>	368.5
<u>Safety &amp; Mission Success</u>	175.3
Safety & Mission Assurance.....	49.5
Chief Engineer.....	82.3
Chief Health & Medical Officer.....	4.4
Independent Verification & Validation.....	39.1
<u>Agency IT Services</u>	238.1
IT Management.....	18.3
Enterprise IT.....	219.8
<u>Strategic Capabilities Assets Program</u>	26.7
<b>CONSTRUCTION &amp; ENVIRONMENTAL COMPLIANCE &amp; REST.</b>	<b>362.3</b>
Construction of Facilities (CoF)	287.4
<u>Aeronautics CoF</u>	5.8

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<u>Institutional CoF</u>	218.9
<u>Exploration CoF</u>	25.9
<u>Space Operations CoF</u>	17.1
<u>Science CoF</u>	19.7
Environmental Compliance & Restoration	74.9
<b>OFFICE OF INSPECTOR GENERAL</b>	<b>39.3</b>

\*\* Public Law 116-006 and accompanying Explanatory Statement includes language identifying "up to" funding limits.

\*\*\* Public Law 116-006 and accompanying Explanatory Statement includes language identifying "not less than" funding limits.