

## NASA FY 2020 BUDGET REQUEST

<u>Actuals</u> <u>FY 2018<sup>1</sup></u> <u>\$20.7B</u>	<u>FY 2019</u> <u>Enacted<sup>2</sup></u> <u>\$21.5B</u>	<u>FY 2020</u> <u>\$21.0B</u>	<u>FY 2021</u> <u>\$21.2B</u>	<u>FY 2022</u> <u>\$21.4B</u>	<u>FY 2023</u> <u>\$21.7B</u>	<u>FY 2024</u> <u>\$21.9B</u>
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Space Policy Directive One instructed NASA to “*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.*”

The Budget includes \$10.7B for the Exploration Campaign that will send astronauts to the Moon and beyond, including:

- The Space Launch System rocket, a heavy-lift expendable launch vehicle, to ensure the rocket is operational in the early 2020s when it will be needed to carry astronauts on board the Orion crew capsule to the vicinity of the Moon.
- The Lunar Gateway, a way station around the Moon by the mid-2020s;
- Commercial launch capabilities to enable regular, low-cost access to the lunar vicinity and surface;
- Lunar landers to enable cargo delivery and human access to the lunar surface by late 2020s.
- Investments in technologies for long-term utilization and exploration of the lunar surface

### **Human Exploration and Operations - \$9,307 million**

- Includes \$5,021.7 million for Deep Space Exploration Systems and \$4,426 million for LEO and Spaceflight Operations.
- Develops the Lunar Gateway, lunar landers, and flight missions to the Moon, and research for future missions.
- Builds the space transportation system made up of the Orion, SLS, and Exploration Ground Systems.
- Defers funding for SLS upgrades to focus on achieving successfully early flights and establishing an annual flight cadence.
- Leverages ISS to identify risks to human health, develop countermeasures, and test technologies that protect astronauts, while supporting commercial development of launch and commercial space station capabilities.
- Continues NASA’s partnership with U.S. commercial space industry to develop and operate safe, reliable, and affordable systems to transport crew to and from the ISS, the Moon, future commercial space stations in low Earth orbit.

### **Exploration Technology - \$1,014 million**

- Accelerates efforts on lunar surface technologies through the Lunar Surface Innovation Initiative, catalyst for enabling critical new lunar surface technologies required for humans to successfully operate on the lunar surface, such as In-Situ Resource Utilization, Surface Power, and more.
- Continues technology research and development spanning all Technology Readiness Level (TRL) spectrum that meets NASA human and robotic exploration needs and supports commercial expansion in space.

### **Science - \$6,304 million**

- \$2,622 million for Planetary Science including Lunar partnerships; missions to Mars, Europa, and across the Solar System; and Planetary Defense.
- \$1,780 million for Earth Science, to support a robust Venture Class program; upcoming launches for Landsat-9, NISAR, and SWOT; and Designated Observable studies consistent with the Decadal Survey.
- \$845 million for Astrophysics to study the universe and characterize Earth-like planets, including the IXPE and GUSTO missions and the recently selected SPHEREx mission.
- \$353 million to launch the James Webb Space Telescope in 2021.
- \$705 million for Heliophysics including the launch of ICON (2019) and the Solar Orbiter Collaboration (2020).
- Supports about 40 missions currently preparing for launch, about 60 operating missions producing leading edge science, and 10,000 U.S. scientists in universities, industry, and government labs through over 3,000 openly competed research awards.
- The Budget proposes to terminate the WFIRST mission and instead focus on completing the delayed James Webb Space Telescope. The Budget also proposes to terminate two Earth science missions (PACE and CLARREO-Pathfinder).

### **Aeronautics Research - \$667 million**

- Advances aeronautics research that may lead to major advances in air traffic management intended to safely increase air traffic capacity, reduce flight delays, and enable safe, robust UAS integration.
- Completes final assembly of the X-59 experimental aircraft, which will demonstrate quiet overland supersonic flight and enable the creation of a new civil supersonic market for U.S. industry.
- Accelerates research in urban air mobility to support industry readiness to perform advanced safety and operations testing for emerging urban and inter-urban air mobility markets.

### **Safety, Security and Mission Services and Construction and Environmental Remediation - \$3,685 million**

- Funds Agency-wide capabilities, workforce, and facilities that enable NASA to meet national space policy priorities.
- Ensures NASA infrastructure and assets are safe, secure, environmentally sound, appropriately sized, and operate efficiently.

### **STEM Engagement - \$0.0**

- The Budget provides no funding for the Office of STEM Engagement, redirecting those funds to NASA’s core mission of exploration. The Budget continues support for activities funded in other accounts, including the Science Activation program within Science, which delivers science content and expertise through cooperative agreements with more than 25 organizations.

<sup>1</sup>FY 2018 reflects funding amounts specified in July 2018 Operating Plan per Public Law 115-141

<sup>2</sup>FY 2019 reflects only funding amounts specified in Public Law 116-006, Consolidated Appropriations Act, 2019.