

## NASA FY 2019 BUDGET REQUEST

<u>Actuals</u>						
<u>FY2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>
<u>\$19.7B</u>	<u>\$19.5B</u>	<u>\$19.9B</u>	<u>\$19.6B</u>	<u>\$19.6B</u>	<u>\$19.6B</u>	<u>\$19.6B</u>

### *The President's Fiscal Year 2019 Budget* **An Innovative and Sustainable Program of Exploration**

NASA is focused on its core exploration mission and the many ways that the agency returns value to the nation through knowledge and discoveries, deepening partnerships with industry and other nations, finding solutions to tough problems, and inspiring the next generation. This budget places NASA at the forefront of a global effort to advance humanity's future in space, and draws on our nation's great capacity for innovation and exploration to raise the bar of human potential and improve life across the globe.

The Budget provides \$10.5 billion for a focused exploration campaign. Building emerging commercial capabilities, as well as on the Space Launch System and Orion, this Budget expands exploration by 1) pursuing a cis-lunar strategy that establishes U.S. preeminence to, around, and on the Moon, and 2) facilitating development of a commercial space economy. NASA will engage with partners through non-traditional partnerships, commercial service purchases, and expanded international cooperative agreements.

#### **Deep Space Exploration Systems – \$4,558.8 million**

- Develops infrastructure to explore and utilize the Moon and its surface.
- Establishes a Lunar Orbital Platform-Gateway in cislunar space, to include a power and propulsion element by 2022, and habitation, airlock, and the required logistics capabilities soon after.
- Continues development of the Space Launch System rocket and Orion crew vehicle to send astronauts on deep space missions.
- Initiates robotic lunar technology investments for future large scale missions to the Moon's surface, using innovative acquisition approaches to partner with U.S. industry and other nations.

#### **Exploration Research & Technology – \$1,002.7 million**

- Conducts technology research and development to address requirements for human and robotic space exploration, and fosters commercial expansion in low Earth orbit, cislunar space and beyond.
- Continues development of high-powered solar electric propulsion for the Lunar Orbital Platform – Gateway and other NASA exploration missions as well as help support commercial potential for the U.S. aerospace industry.
- Supports the In-Space Robotic Manufacturing and Assembly mission that will use public-private partnerships to demonstrate new technologies to build large structures in a space environment.
- Conducts cutting-edge research on the effect of spaceflight and the space environment on the human body, via the Human Research Program.

#### **LEO and Space Operations – \$4,624.6 million**

- Initiates a new Commercial LEO Development effort, initially funded with \$150 million in FY 2019, for NASA to encourage and fund the development of new commercial orbital platforms and capabilities for use by the private sector and NASA.
- Continues commercial development of U.S. crew transportation systems that will support the International Space Station beginning in 2019, building on the success of commercial cargo transportation services.
- Continues use of the International Space Station as a platform to identify and quantify risks to human health and performance, develop countermeasures, and develop and test technologies that will protect astronauts during extended human exploration missions; conduct world class science to improve life on Earth; and further commercial activities in LEO. Ends direct federal support for ISS in 2025.

### **Science – \$5,895.0 million**

- Launches a new Lunar Discovery and Exploration Program, taking advantage of emerging commercial capabilities to deliver science and technology payloads to the surface of the Moon.
- \$2,234.7 million for Planetary Science, keeping on track the Mars 2020 rover (2020 launch) and Europa Clipper (2025 launch). Continues formulation of the New Frontiers candidates CAESAR and Dragonfly, and development of the Discovery missions Lucy and Psyche.
- \$1,784.2 million for Earth Science, includes launches of GRACE Follow-On, ICESat-2, ECOSTRESS, and GEDI. Supports continued and expanded commercial partnerships with low-Earth orbit and geostationary hosted payloads and pilot NASA purchases of data products from commercial small satellite constellations. Proposes the termination of PACE, OCO-3, DSCOVR Earth-viewing instruments, and CLARREO Pathfinder given higher priorities within NASA. In January 2018 NASA cancelled the Radiation Budget Instrument due to cost and technical challenges.
- \$1,185.4 million for Astrophysics, supporting launch of the James Webb Space Telescope in 2019. Terminates WFIRST due to its significant cost and higher priorities elsewhere within NASA. Funding made available from the proposed termination is redirected towards future competed missions and research.
- \$690.7 million for Heliophysics, supporting the DRIVE initiative and research to improve space weather observation, forecasting, and modeling.
- Continues formulation and development of over 40 missions and operation of over 60 missions producing leading-edge science.
- Funds over 10,000 U.S. scientists in universities, industry, and government labs through over 3,000 openly competed research awards.

### **Aeronautics Research - \$ 633.9 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 the Critical Design Review for the Low Boom Flight Demonstrator X-Plane, which will demonstrate quiet overland supersonic flight and enable the creation of a new civil supersonic market for U.S. industry.
- Increases funding for fundamental research on hypersonics, improving the design of future hypersonic vehicles and enabling stronger collaboration with other government agencies and universities.
- Develops promising subsonic aircraft technologies that dramatically reduce fuel consumption, noise, and emissions enabling the U.S. aviation industry to maintain and advance its global leadership.

### **Office of Education - \$ 0.0**

The Budget provides no funding for the Office of Education, redirecting those funds to NASA's core mission of exploration. While grant programs like Space Grant, EPSoR, and MUREP will no longer be funded, NASA will continue to support other education activities, such as internships and fellowships funded by the mission directorates. The Budget also continues support for the Science Activation program within the Science Mission Directorate, which delivers science content and expertise through cooperative agreements with more than 25 organizations.

### **Safety, Security and Mission Services (\$2,749.7 million) and Construction & Environmental Compliance and Restoration (\$388.2 million)**

- Funds Agency-wide mission support operations, including facilities and environmental activities.
- Increases funding to strengthen agency-wide cybersecurity to protect data, systems, and operations.
- Ensures NASA infrastructure and assets are safe, secure, environmentally sound, and operate efficiently.