



SPACE SCIENCE AND EXPLORATION

Research and Development Funding in the President's 2007 Budget

Two years ago, the President outlined a bold vision for sustained and affordable human and robotic exploration of space, with the Moon as a first step toward human missions to Mars and beyond. NASA instituted various organizational and programmatic steps to pursue this vision in the initial months after its release. Over the last year, NASA has continued working to redirect its existing human spaceflight programs—the Space Shuttle and International Space Station (ISS)—toward the goal of supporting the vision. Further, it has determined the launch and spacecraft architecture requirements necessary to implement the vision in earnest. An exciting array of space science missions is also being planned that will enhance our understanding of the solar system, the complex interaction between the Earth and space and its impact on our environment, and the origin, structure, evolution, and destiny of the universe.

The President's 2007 Budget for NASA is \$16.8 billion, a 3.2% increase over the enacted 2006 level (excluding one-time supplementals), reflecting a strong commitment by the Administration to continued pursuit of the exploration vision. Out of necessity, the FY 2007 NASA budget also makes some difficult decisions, canceling some projects with high technical risk and/or whose cost would have led to the certain delay or cancellation of other important programs. The budget request maintains NASA's emphasis on science and exploration, while seeking to reinforce the capabilities necessary for long-term technical excellence and success.

- **A Better Understanding of Space and Earth.** NASA requests \$5.33 billion for earth and space science in FY 2007 (1.4% increase) to continue advancing our understanding of the Sun, Earth, planets and the broader universe. Following up on recent robotic investigations of Mars and Saturn, NASA is sending ever-more capable robotic spacecraft to Mars and will explore some of the least-known areas of the solar system, including Mercury, the asteroids, and Pluto. NASA also will build on its legacy of revolutionizing astronomy by continuing operations of space telescopes such as Hubble, Chandra, and Spitzer, while planning for the next generation of spacecraft that will enhance our ability to find planets around other stars and peer deep into the history of the universe. The FY 2007 budget continues to fund operations for 56 on-going space missions as well as critical investments in Earth science satellites, technologies and research, including Landsat. NASA will continue to play a major part in the interagency Climate Change Science Program, and contribute to the international initiative on the Global Earth Observing System of Systems.
- **Moving Forward on Exploration.** NASA requests \$3.98 billion in FY 2007 for new vehicles and technologies to enable sustained human and advanced robotic exploration far from Earth. NASA has identified the major design features and requirements (and related launch architecture) for a Crew Exploration Vehicle (CEV) that will carry astronauts to the Moon. NASA plans to initiate the acquisition process for certain elements of this architecture in 2006 and stage its first crewed flight no later than 2014. At the same time, robotic exploration—including a series of lunar robotic missions starting in 2008—will help acquire information on where human explorers should travel and the technologies necessary to support them upon arrival. NASA will continue pursuing critical new technologies to support exploration, such as advanced thermal protection and propulsion for the CEV, as well as technologies for using lunar resources. In addition, NASA is pursuing innovative means to engage private industry, including offering space prizes to spur innovation and procuring commercial launch services to support the ISS.
- **Assembling and Utilizing the ISS.** The 2007 NASA budget proposes \$6.23 billion for operating the Space Shuttle and continuing assembly and operations of the ISS. NASA has selected a configuration for the ISS that is consistent with the President's vision and meets the needs of our international partners, while employing the minimum number of Shuttle flights required to complete assembly of the ISS before Shuttle retirement in 2010. NASA is refocusing U.S. research on the ISS to prepare human explorers to travel beyond low Earth orbit, including developing countermeasures against space radiation and understanding long-term physiological effects of reduced gravity.