# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

## *Federal Funds*

### General and special funds:

SCIENCE, AERONAUTICS AND EXPLORATION

(INCLUDING TRANSFER OF FUNDS)

For necessary expenses, not otherwise provided for, in the conduct and support of science, aeronautics and exploration research and development activities, including research, development, operations, support and services; maintenance; construction of facilities including repair, rehabilitation, revitalization, and modification of facilities, construction of new facilities and additions to existing facilities, facility planning and design, and restoration, and acquisition or condemnation of real property, as authorized by law; environmental compliance and restoration; space flight, spacecraft control and communications activities including operations, production, and services; program management; personnel and related costs, including uniforms or allowances therefor, as authorized by 5 U.S.C. 5901–5902; travel expenses; purchase and hire of passenger motor vehicles; not to exceed $35,000 for official reception and representation expenses; and purchase, lease, charter, maintenance and operation of mission and administrative aircraft, [$7,742,550,000] *$9,661,000,000*, to remain available until September 30, [2006] *2007*, of which amounts as determined by the Administrator for salaries and benefits; training, travel and awards; facility and related costs; information technology services; science, engineering, fabricating and testing services; and other administrative services may be transferred to "Exploration capabilities" in accordance with section 312(b) of the National Aeronautics and Space Act of 1958, as amended by Public Law 106–377. *(Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2005.)*

**Program and Financing** (in millions of dollars)

| Identification code 80–0114–0–1–999 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Obligations by program activity:** | | | |
| 00.01 | Space science | 3,336 | 4,468 | 203 |
| 00.02 | Earth science | 1,430 | 1,629 | 73 |
| 00.03 | Biological & physical research | 836 | 1,128 | 52 |
| 00.04 | Aeronautics | 880 | 1,021 | 811 |
| 00.05 | Education | 200 | 241 | 161 |
| 00.06 | Science | | | 4,929 |
| 00.07 | Exploration Systems | | | 2,848 |
| 09.01 | Reimbursable program | 550 | 664 | 485 |
| 10.00 | Total new obligations | 7,232 | 9,151 | 9,562 |
| | **Budgetary resources available for obligation:** | | | |
| 21.40 | Unobligated balance carried forward, start of year | | 1,191 | 385 |
| 22.00 | New budget authority (gross) | 8,423 | 8,345 | 10,146 |
| 23.90 | Total budgetary resources available for obligation | 8,423 | 9,536 | 10,531 |
| 23.95 | Total new obligations | −7,232 | −9,151 | −9,562 |
| 24.40 | Unobligated balance carried forward, end of year | 1,191 | 385 | 969 |
| | **New budget authority (gross), detail:** | | | |
| | Discretionary: | | | |
| 40.00 | Appropriation | 7,930 | 7,743 | 9,661 |
| 40.35 | Appropriation permanently reduced | −47 | −62 | |
| 41.00 | Transferred to other accounts | −10 | | |
| 43.00 | Appropriation (total discretionary) | 7,873 | 7,681 | 9,661 |
| | Spending authority from offsetting collections: | | | |
| 68.00 | Offsetting collections (cash) | 252 | 664 | 485 |
| 68.10 | Change in uncollected customer payments from Federal sources (unexpired) | 298 | | |
| 68.90 | Spending authority from offsetting collections (total discretionary) | 550 | 664 | 485 |
| 70.00 | Total new budget authority (gross) | 8,423 | 8,345 | 10,146 |
| | **Change in obligated balances:** | | | |
| 72.40 | Obligated balance, start of year | | 2,567 | 3,276 |
| 73.10 | Total new obligations | 7,232 | 9,151 | 9,562 |
| 73.20 | Total outlays (gross) | −4,367 | −8,442 | −8,959 |
| 74.00 | Change in uncollected customer payments from Federal sources (unexpired) | −298 | | |
| 74.40 | Obligated balance, end of year | 2,567 | 3,276 | 3,879 |
| | **Outlays (gross), detail:** | | | |
| 86.90 | Outlays from new discretionary authority | 252 | 4,658 | 5,509 |
| 86.93 | Outlays from discretionary balances | 4,115 | 3,784 | 3,450 |
| 87.00 | Total outlays (gross) | 4,367 | 8,442 | 8,959 |
| | **Offsets:** | | | |
| | Against gross budget authority and outlays: | | | |
| | Offsetting collections (cash) from: | | | |
| 88.00 | Federal sources | −165 | −617 | −457 |
| 88.40 | Non-Federal sources | −87 | −47 | −28 |
| 88.90 | Total, offsetting collections (cash) | −252 | −664 | −485 |
| | Against gross budget authority only: | | | |
| 88.95 | Change in uncollected customer payments from Federal sources (unexpired) | −298 | | |
| | **Net budget authority and outlays:** | | | |
| 89.00 | Budget authority | 7,873 | 7,681 | 9,661 |
| 90.00 | Outlays | 4,115 | 7,778 | 8,474 |

**Performance Metrics**

| Identification code 80–0114–0–1–999 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Mars Exploration: | | | |
| 34414 | Progress in searching for chemical and biological signatures of past and present life on Mars | Green | Green | Green |
| | Solar System Exploration: | | | |
| 114414 | Progress in learning what our solar system can tell us about extra-solar planetary systems | Green | Green | Green |

This appropriation provides for the full costs associated with the Science, Aeronautics and Exploration (SAE) activities of the Agency, which consist of the programs, or "themes," within the Science Mission Directorate, Exploration Systems Mission Directorate, Aeronautics Research Mission Directorate and the Office of Education. (Last year, Exploration Systems was in the Exploration Capabilities appropriation.) The full costs include both the direct and the indirect costs supporting these programs, and provide for all of the research; development; operations; salaries and related expenses; design, repair, rehabilitation, and modification of facilities and construction of new facilities; and other general and administrative activities supporting the themes within SAE.

Detailed performance goals associated with the SAE activities are addressed in NASA's chapter in the 2006 Budget volume. The SAE activities are described below.

*Science.*—NASA's Science Mission Directorate now encompass three themes: Earth-Sun System, Solar System Exploration, and Universe. The integration of the former Earth and Space Science Enterprises positions NASA's science endeavors to support and benefit from the President's vision for space exploration, while providing opportunities to maximize investments. The Directorate seeks to answer fundamental scientific questions concerning the galaxy and the universe; connections among the Sun, Earth and other planets of the solar system; the way in which Earth's climate is changing; comparisons of Earth with other planets in our solar system and around other stars; the origin and evolution of planetary systems; and the origin and distribution of life in the universe. The Directorate achieves its objectives

**General and special funds**—Continued

SCIENCE, AERONAUTICS AND EXPLORATION—Continued

(INCLUDING TRANSFER OF FUNDS)—Continued

through robotic spacecraft missions, ground-based scientific research and data analysis, and the development of new technologies for future missions.

Life on Earth prospers in a biosphere and climate powered by energy from the Sun and moderated by water and carbon cycles. Working with domestic and international partners, NASA provides accurate, objective scientific data and analysis to advance understanding of Earth-Sun system processes and phenomena. NASA's contributions enable improved prediction and response capabilities for climate, weather, natural hazards, and even human-induced disasters. Employing nearly 30 Earth- or Sun-observing satellites that routinely make measurements with over 100 remote sensing instruments, NASA's goal is to continue using the view from space to study the Earth system and improve prediction of Earth system changes, solar variability and the connection between the two. In seeking to understand the Sun, heliosphere, and planetary environments as a single, connected system, NASA will pursue two sets of missions: Solar Terrestrial Probe missions to address fundamental science questions about the physics of plasma and the flow of mass and energy in the solar system, and Living With a Star missions to develop specific knowledge and understanding of those aspects of the Sun-Earth system that directly affect life and society. The Solar Terrestrial Relations Observatory (STEREO) will advance our understanding of the Sun's corona, or outer "atmosphere," and the origin of huge eruptions of solar material known as coronal mass ejections. Under Living With a Star, the Solar Dynamics Observatory will observe the solar interior and atmosphere continuously from geosynchronous orbit to determine the causes of solar variability. Its images will provide full-disc views of the sun with four times the resolution of those currently available.

In the next few decades, NASA will deepen our understanding of the solar system, with spacecraft fanning out to destinations from the innermost planet to the very edge of our Sun's influence. Some will stay in Earth's orbit; others will follow looping, one-way trajectories through the gravitational forces of the planets, and a few will come back carrying priceless souvenirs from other worlds. Our intensive investigation of Mars will continue, from above and on the surface, with a new generation of missions; advanced robotic missions such as the 2009 Mars Science Laboratory are critical to the vision for space exploration. The past year's successful investigations of Mars and Saturn will be followed by spacecraft bound for the planets Mercury and Pluto, completing NASA's initial reconnaissance of our solar system. NASA will also visit the Kuiper Belt, the suspected source of comets and other icy bodies that lies predominantly beyond Pluto's orbit, to investigate the primordial substances which evolved into the solar system.

To answer important scientific questions about the nature of the universe, NASA will continue to operate its prolific Hubble, Chandra, and Spitzer space telescopes, while planning a series of future missions linked by powerful new technologies and complementary approaches to shared science goals. These missions will enhance our ability over the next decade and a half to find planets around other stars and peer deep into the history of the universe and improve our understanding of its structure. The Gamma-ray Large-Area Space Telescope will investigate the high-energy world of black holes and neutron stars, while the Laser Interferometer Space Antenna will detect gravitational waves generated by stars and black holes throughout the universe. The Space Interferometry Mission (SIM) will allow indirect detection of planets through observation of thousands of stars and will investigate the structure of planetary disks. SIM will also demonstrate unprecedented astronomical accuracy and high spatial resolution and will serve as a technological precursor to the Terrestrial Planet Finder, a mission that will search for Earth-like planets around stars. The James Webb Space Telescope will study the earliest galaxies and stars formed after the Big Bang.

*Exploration systems.*—The Exploration Systems Mission Directorate includes four themes that will collaboratively enable sustainable exploration and scientific discovery in our solar system. The themes are Constellation Systems, Exploration Systems Research and Technology, Human Systems Research and Technology, and Prometheus Nuclear Systems and Technology. The organization of the Mission Directorate into these four themes reflects, in part, the need to keep some existing organizational structures in place as programs are incorporated into the Exploration Systems Mission Directorate. This organization may change as implementation of the vision for space exploration progresses.

Through the Constellation Systems theme NASA will develop, demonstrate, and deploy the transportation, life support, and surface systems that will enable sustained human and robotic exploration of the Moon, Mars, and beyond. These include the Crew Exploration Vehicle (CEV) for the transport and support of human crews traveling to destinations beyond low Earth orbit, as well as launch vehicles for transport of the CEV and cargo to LEO, and any ground support infrastructure for communications and operations. These systems, collectively known as the "system of systems" will be developed in a "spiral" approach, wherein early demonstrations and prototypes are used to demonstrate capabilities, validate technologies, and mitigate risk, all along an evolutionary path toward an operational capability. The planned first spiral development will provide the capability to deliver humans to orbit in a CEV by 2014. The second spiral will deliver humans to the lunar surface by 2020, followed by the third spiral, which will enable extended visits on the lunar surface. As spiral development evolves, system of systems elements will grow to include in-space support systems, destination surface systems, and additional human support systems.

The Exploration Systems Research and Technology theme represents NASA's commitment to investing in the technologies and capabilities that will enable the vision for space exploration. The goals of solar system exploration will demand a robust, ongoing commitment to focused innovation that will benefit activities across the Agency. Through a focused research and development effort NASA will develop technologies planned to mature at intervals allowing pre-planned integration into different spirals and different missions. NASA is working closely with other government agencies, industry, academia, and other partners to leverage common requirements and identify innovative ideas. As part of this effort, the theme includes the Centennial Challenges program, an effort to establish a series of annual prizes for revolutionary, breakthrough accomplishments that advance solar system exploration and other NASA priorities. The other programs within this theme are the Advanced Space Technology Program, the Technology Maturation Program, and the Innovative Partnerships Program.

The Human Systems Research and Technology (HSRT) theme comprises programs and research formerly conducted as part of NASA's Biological and Physical Research Enterprise. HSRT research and development is focused on supporting the goals associated with the vision for space exploration. Programs within this theme advance knowledge and technology critical for supporting long-term human survival and performance during operations beyond low Earth orbit, with a focus on improving medical care and human health maintenance. HSRT comprises three programs: Human Health and Performance; Life Support and Habitation; and

Human Systems Integration. The Human Health and Performance program conducts research on questions about human biology and physiology relevant to the human exploration of the solar system, and delivers technology to help maintain or improve human health in the space environment. The Life Support and Habitation program conducts research and develops technology for life support and other critical systems for spacecraft operations. The Human Systems Integration program focuses on optimizing human-machine interaction in the operation of spacecraft systems.

Prometheus Nuclear Systems Research and Technology is NASA's effort to develop nuclear power systems that can transform our ability to explore the solar system. Historically, space exploration has been limited by the power available from converting light from the Sun into energy. On planetary surfaces and in locations distance from the Sun, solar power is sometimes insufficient. Radioisotope power systems, a passive form of nuclear power, have addressed this issue and enabled a wide range of outer planetary exploration missions over the past 40 years, as evidenced by the Galileo and Cassini spacecraft, but the power levels of these systems are very limited. The development of a new space nuclear capability can enable more sophisticated, more capable robotic spacecraft as well as robust systems that may be needed to support larger-scale operations on the surfaces of the Moon and Mars. While high costs and technical concerns prompted NASA to defer a nuclear-powered mission to study Jupiter's icy moons, the agency will start on a new nuclear technology demonstrator with direct applications to exploration.

*Aeronautics research.*—The Aeronautics Research Mission Directorate seeks to provide advanced aeronautical technologies to meet the challenges of next generation systems in aviation for civilian and scientific purposes. The Directorate conducts research and develops enabling technology that will: reduce the aircraft fatal accident rate and the vulnerability of the air transportation system to threats; protect the local and global environmental quality by reducing aircraft noise and emissions; enable more people and goods to travel faster and farther with fewer delays; and result in revolutionary earth and space science missions and opportunities for economic growth. NASA works closely with the Federal Aviation Administration, the Department of Homeland Security, industry, academia, and other governmental agencies in developing these technologies.

The Aeronautics Technology Theme consists of three integrated programs. NASA is transforming its aeronautics program to emphasize development and demonstration of technologies critical to the Nation's future aviation requirements, in areas where NASA has unique capabilities. The Aviation Safety and Security Program conducts research and technology development for the nation's aviation system to prevent unintentional and intentional actions that would cause damage, harm, and loss of life, and to mitigate the consequences of such actions, should they occur. The Airspace Systems Program conducts research and technology development that will enable revolutionary improvements to, and modernization of, the National Airspace System, as well as the introduction of new systems for vehicles whose operation can take advantage of the improved, modern air traffic management system. The Vehicle Systems Program will develop the technologies and conduct flight demonstrations of the high risk, high payoff concepts that industry, with its focus on the near-term, does not fund.

*Education.*—NASA works to inspire and motivate students at all levels to pursue careers in the fields of science, technology, engineering, and mathematics (STEM), while also engaging the education community to reach this goal. NASA's objectives include: providing elementary and secondary students and teachers with NASA-related education opportunities; supporting higher education research capability and opportunities that attract and prepare students and faculty for NASA-related careers; providing students, teachers, faculty, and researchers from underrepresented and underserved communities with opportunities in NASA-related STEM fields; and increasing student, teacher, and public access to NASA education resources by developing and deploying innovative technology applications platforms. NASA engages the public in shaping and sharing the experience of exploration and discovery by improving public understanding of science and technology, including NASA aerospace technology, research, and exploration missions.

**Object Classification** (in millions of dollars)

| Identification code 80–0114–0–1–999 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Direct obligations: | | | |
| | Personnel compensation: | | | |
| 11.1 | Full-time permanent | 823 | 836 | 772 |
| 11.3 | Other than full-time permanent | 30 | 52 | 54 |
| 11.5 | Other personnel compensation | 17 | 23 | 23 |
| 11.8 | Special personal services payments | | 5 | 5 |
| 11.9 | Total personnel compensation | 870 | 916 | 854 |
| 12.1 | Civilian personnel benefits | 215 | 222 | 215 |
| 13.0 | Benefits for former personnel | 9 | 6 | 4 |
| 21.0 | Travel and transportation of persons | 41 | 37 | 35 |
| 22.0 | Transportation of things | 3 | 4 | 4 |
| 23.1 | Rental payments to GSA | 18 | 22 | 25 |
| 23.2 | Rental payments to others | 2 | 2 | 3 |
| 23.3 | Communications, utilities, and miscellaneous charges | 52 | 65 | 71 |
| 24.0 | Printing and reproduction | 5 | 6 | 7 |
| 25.1 | Advisory and assistance services | 92 | 115 | 125 |
| 25.2 | Other services | 497 | 621 | 678 |
| 25.3 | Other purchases of goods and services from Government accounts | 145 | 181 | 198 |
| 25.4 | Operation and maintenance of facilities | 334 | 417 | 455 |
| 25.5 | Research and development contracts | 3,382 | 4,588 | 5,017 |
| 25.6 | Medical care | 2 | 2 | 3 |
| 25.7 | Operation and maintenance of equipment | 36 | 45 | 49 |
| 26.0 | Supplies and materials | 94 | 117 | 128 |
| 31.0 | Equipment | 129 | 161 | 176 |
| 32.0 | Land and structures | 90 | 112 | 123 |
| 41.0 | Grants, subsidies, and contributions | 666 | 848 | 907 |
| 99.0 | Direct obligations | 6,682 | 8,487 | 9,077 |
| 99.0 | Reimbursable obligations | 550 | 664 | 485 |
| 99.9 | Total new obligations | 7,232 | 9,151 | 9,562 |

**Personnel Summary**

| Identification code 80–0114–0–1–999 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Direct: | | | |
| 1001 | Total compensable workyears: Civilian full-time equivalent employment | 9,748 | 9,696 | 8,710 |
| | Reimbursable: | | | |
| 2001 | Total compensable workyears: Civilian full-time equivalent employment | 103 | 126 | 92 |

## Exploration Capabilities

(including transfer of funds)

For necessary expenses, not otherwise provided for, in the conduct and support of exploration capabilities research and development activities, including research, development, operations, support and services; maintenance; construction of facilities including repair, rehabilitation, revitalization and modification of facilities, construction of new facilities and additions to existing facilities, facility planning and design, and acquisition or condemnation of real property, as authorized by law; environmental compliance and restoration; space flight, spacecraft control and communications activities including operations, production, and services; program management; personnel and related costs, including uniforms or allowances therefor, as authorized by 5 U.S.C. 5901–5902; travel expenses; purchase and hire of passenger motor vehicles; not to exceed $35,000 for official reception and representation expenses; and purchase, lease, charter, maintenance and operation of mission and administrative aircraft,

**General and special funds**—Continued

EXPLORATION CAPABILITIES—Continued

(INCLUDING TRANSFER OF FUNDS)—Continued

[$8,425,850,000] *$6,763,000,000*, to remain available until September 30, [2006] *2007*, of which amounts as determined by the Administrator for salaries and benefits; training, travel and awards; facility and related costs; information technology services; science, engineering, fabricating and testing services; and other administrative services may be transferred to "Science, aeronautics and exploration" in accordance with section 312(b) of the National Aeronautics and Space Act of 1958, as amended by Public Law 106–377. *(Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2005.)*

[SPACE FLIGHT CAPABILITIES]

[For an additional amount for "Space flight capabilities", to repair assets damaged and take other emergency measures due to the effects of hurricanes and other disasters declared by the President, $126,000,000, to remain available until expended: *Provided,* That the amounts provided herein are designated as an emergency requirement pursuant to section 402 of S. Con. Res. 95 (108th Congress), as made applicable to the House of Representatives by H. Res. 649 (108th Congress) and applicable to the Senate by section 14007 of Public Law 108–287.] *(Emergency Supplemental Appropriations for Hurricane Disasters Assistance Act, 2005.)*

**Program and Financing** (in millions of dollars)

| Identification code 80–0115–0–1–252 | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|
| **Obligations by program activity:** | | | |
| 00.01 Space Operations | 5,621 | 6,940 | 6,768 |
| 00.02 Exploration Systems | 1,401 | 1,693 | 83 |
| 09.01 Reimbursable program | 138 | 617 | 398 |
| 10.00 Total new obligations | 7,160 | 9,250 | 7,249 |
| **Budgetary resources available for obligation:** | | | |
| 21.40 Unobligated balance carried forward, start of year | | 573 | 424 |
| 22.00 New budget authority (gross) | 7,732 | 9,101 | 7,161 |
| 23.90 Total budgetary resources available for obligation | 7,732 | 9,674 | 7,585 |
| 23.95 Total new obligations | −7,160 | −9,250 | −7,249 |
| 24.40 Unobligated balance carried forward, end of year | 573 | 424 | 336 |
| **New budget authority (gross), detail:** | | | |
| Discretionary: | | | |
| 40.00 Appropriation | 7,512 | 8,551 | 6,763 |
| 40.35 Appropriation permanently reduced | −44 | −67 | |
| 42.00 Transferred from other accounts | 10 | | |
| 43.00 Appropriation (total discretionary) | 7,478 | 8,484 | 6,763 |
| Spending authority from offsetting collections: | | | |
| 68.00 Offsetting collections (cash) | 178 | 617 | 398 |
| 68.10 Change in uncollected customer payments from Federal sources (unexpired) | 76 | | |
| 68.90 Spending authority from offsetting collections (total discretionary) | 254 | 617 | 398 |
| 70.00 Total new budget authority (gross) | 7,732 | 9,101 | 7,161 |
| **Change in obligated balances:** | | | |
| 72.40 Obligated balance, start of year | | 1,688 | 2,844 |
| 73.10 Total new obligations | 7,160 | 9,250 | 7,249 |
| 73.20 Total outlays (gross) | −5,396 | −8,094 | −7,635 |
| 74.00 Change in uncollected customer payments from Federal sources (unexpired) | −76 | | |
| 74.40 Obligated balance, end of year | 1,688 | 2,844 | 2,458 |
| **Outlays (gross), detail:** | | | |
| 86.90 Outlays from new discretionary authority | 178 | 6,386 | 4,997 |
| 86.93 Outlays from discretionary balances | 5,218 | 1,708 | 2,638 |
| 87.00 Total outlays (gross) | 5,396 | 8,094 | 7,635 |
| **Offsets:** | | | |
| Against gross budget authority and outlays: | | | |
| Offsetting collections (cash) from: | | | |
| 88.00 Federal sources | −134 | −545 | −347 |
| 88.40 Non-Federal sources | −44 | −72 | −51 |
| 88.90 Total, offsetting collections (cash) | −178 | −617 | −398 |
| Against gross budget authority only: | | | |
| 88.95 Change in uncollected customer payments from Federal sources (unexpired) | −76 | | |
| **Net budget authority and outlays:** | | | |
| 89.00 Budget authority | 7,478 | 8,484 | 6,763 |
| 90.00 Outlays | 5,218 | 7,477 | 7,237 |

**Performance Metrics**

| Identification code 80–0115–0–1–252 | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|
| Space Shuttle: | | | |
| 34601 Mishaps causing death, damage to property of more than $250,000, or permanent disability or hospitalization of three or more people | 0 | 0 | |
| 34602 Average number of in-flight anomalies per flight | 0 | <8 | <8 |

This appropriation provides for the full costs associated with the Exploration Capabilities activities of the Agency, which includes the Space Station, Space Shuttle, and Space and Flight Support themes within the Space Operations Mission Directorate. (Exploration Systems, which last year was in the Exploration Capabilities appropriation, has been moved to the Science, Aeronautics, and Exploration appropriation.) The full costs include both the direct and indirect costs supporting these programs, and provide for all of the research; development; operations; salaries and related expenses; design, repair, rehabilitation, and modification of facilities and construction of new facilities; and other general and administrative activities supporting the themes within Exploration Capabilities.

Detailed performance goals associated with Exploration Capabilities activities are addressed in NASA's chapter in the 2006 Budget volume. Exploration Capabilities encompasses the following themes: International Space Station, Space Shuttle Program, and Space and Flight Support.

*International Space Station.*—The International Space Station (ISS) is a complex of research laboratories in low Earth orbit in which American and international astronauts are conducting scientific and technological investigations in a microgravity environment. The primary objective of the ISS is to support the President's vision for space exploration. The ISS is still under construction and NASA is examining how best to complete it in a manner that meets the requirements of the vision and the ISS international partners while using as few Shuttle flights as possible. This reexamination is critical to fielding a space station that adequately supports exploration and allows the Shuttle to be retired in 2010 as planned.

Space Shuttle operations are expected to begin in the late spring of 2005 and construction of the ISS is planned to resume after the successful launch of two Shuttle logistics missions to the station. The 2006 Budget request provides funding for the continuation of ISS launch processing activities, the resumption of vehicle on-orbit assembly with a crew of three, logistics re-supply and crew exchange using the Space Shuttle, continuation of research payload and experiment deliveries to orbit, and reserves sufficient to address unexpected technical issues that may arise as the program returns to assembly. The 2006 Budget request also includes funding for development of habitability modifications and completion of the regenerative environmental control and life support system needed to increase the station's crew capacity, consistent with human space exploration research requirements. The request also includes funds to initiate procurement of crew and cargo delivery services to support ISS logistics needs. These services are key to ensuring the ISS's viability both leading up to and following the Shuttle's retirement.

*Space Shuttle.*—The Space Shuttle program's primary mission is to assemble the ISS. In 2010, the Space Shuttle—

after nearly 30 years of duty—will be retired from service. NASA is currently determining how many Shuttle flights will be required to complete an ISS configuration that meets the needs of both the space exploration vision and the international partners using as few Shuttle flights as possible. The 2006 Budget request assumes the Space Shuttle will return to flight in late spring of 2005. It provides for specific program investments for vehicle safety and supportability needed to maintain a viable Shuttle fleet through retirement. The 2006 Budget request will allow NASA to provide appropriate contingency resources to combat flight hardware obsolescence, maintain ground systems and facilities, and initiate early actions for an orderly phase-out of the program.

*Space and flight support.*—The Space and Flight Support Theme comprises separate programs that provide ongoing customer support for critical NASA services including Space Communications, Launch Services, Rocket Propulsion Testing, and Crew Health and Safety. These services support a wide range of customers including NASA, other federal agencies, foreign governments, and commercial interests. Funds for environmental remediation, which were previously requested in this theme, are now bookkept as part of NASA's corporate general and administrative (G&A) funds.

**Object Classification** (in millions of dollars)

| Identification code 80–0115–0–1–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Direct obligations: | | | |
| | Personnel compensation: | | | |
| 11.1 | Full-time permanent | 752 | 799 | 878 |
| 11.3 | Other than full-time permanent | 22 | 50 | 61 |
| 11.5 | Other personnel compensation | 20 | 22 | 26 |
| 11.8 | Special personal services payments | | 5 | 6 |
| 11.9 | Total personnel compensation | 794 | 876 | 971 |
| 12.1 | Civilian personnel benefits | 186 | 212 | 244 |
| 13.0 | Benefits for former personnel | 1 | 6 | 5 |
| 21.0 | Travel and transportation of persons | 32 | 35 | 40 |
| 22.0 | Transportation of things | 5 | 6 | 5 |
| 23.1 | Rental payments to GSA | 1 | 1 | 1 |
| 23.2 | Rental payments to others | 5 | 6 | 5 |
| 23.3 | Communications, utilities, and miscellaneous charges | 49 | 61 | 46 |
| 24.0 | Printing and reproduction | 8 | 10 | 7 |
| 25.1 | Advisory and assistance services | 149 | 186 | 139 |
| 25.2 | Other services | 494 | 617 | 460 |
| 25.3 | Other purchases of goods and services from Government accounts | 201 | 251 | 187 |
| 25.4 | Operation and maintenance of facilities | 2,014 | 2,515 | 1,874 |
| 25.5 | Research and development contracts | 2,615 | 3,267 | 2,432 |
| 25.6 | Medical care | 2 | 2 | 2 |
| 25.7 | Operation and maintenance of equipment | 38 | 47 | 35 |
| 26.0 | Supplies and materials | 83 | 104 | 77 |
| 31.0 | Equipment | 168 | 210 | 156 |
| 32.0 | Land and structures | 84 | 105 | 78 |
| 41.0 | Grants, subsidies, and contributions | 93 | 116 | 87 |
| 99.0 | Direct obligations | 7,022 | 8,633 | 6,851 |
| 99.0 | Reimbursable obligations | 138 | 617 | 398 |
| 99.9 | Total new obligations | 7,160 | 9,250 | 7,249 |

**Personnel Summary**

| Identification code 80–0115–0–1–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Direct: | | | |
| 1001 | Total compensable workyears: Civilian full-time equivalent employment | 8,760 | 9,362 | 9,953 |
| | Reimbursable: | | | |
| 2001 | Total compensable workyears: Civilian full-time equivalent employment | 22 | 43 | 43 |

HUMAN SPACE FLIGHT

**Program and Financing** (in millions of dollars)

| Identification code 80–0111–0–1–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Direct program:** | | | |
| | Direct program: | | | |
| 00.01 | Space station | 251 | | |
| 00.02 | Payload and ELV support | 14 | | |
| 00.03 | Investments and support | 199 | 18 | |
| 00.04 | Space shuttle | 567 | | |
| 00.05 | Space communications and data systems | 21 | | |
| 00.07 | Safety, mission assurance & engineering | 8 | | |
| 09.01 | Reimbursable program | 43 | | |
| 10.00 | Total new obligations | 1,103 | 18 | |
| | **Budgetary resources available for obligation:** | | | |
| 21.40 | Unobligated balance carried forward, start of year | 488 | 18 | |
| 22.00 | New budget authority (gross) | 43 | | |
| 22.10 | Resources available from recoveries of prior year obligations | 590 | | |
| 23.90 | Total budgetary resources available for obligation | 1,121 | 18 | |
| 23.95 | Total new obligations | −1,103 | −18 | |
| 24.40 | Unobligated balance carried forward, end of year | 18 | | |
| | **New budget authority (gross), detail:** | | | |
| | Spending authority from offsetting collections: | | | |
| | Discretionary: | | | |
| 68.00 | Offsetting collections (cash) | 47 | | |
| 68.10 | Change in uncollected customer payments from Federal sources (unexpired) | −4 | | |
| 68.90 | Spending authority from offsetting collections (total discretionary) | 43 | | |
| | **Change in obligated balances:** | | | |
| 72.40 | Obligated balance, start of year | 1,678 | 285 | 285 |
| 73.10 | Total new obligations | 1,103 | 18 | |
| 73.20 | Total outlays (gross) | −1,889 | −18 | |
| 73.40 | Adjustments in expired accounts (net) | −16 | | |
| 73.45 | Recoveries of prior year obligations | −590 | | |
| 74.00 | Change in uncollected customer payments from Federal sources (unexpired) | 4 | | |
| 74.10 | Change in uncollected customer payments from Federal sources (expired) | −6 | | |
| 74.40 | Obligated balance, end of year | 285 | 285 | 285 |
| | **Outlays (gross), detail:** | | | |
| 86.90 | Outlays from new discretionary authority | 43 | | |
| 86.93 | Outlays from discretionary balances | 1,846 | 18 | |
| 87.00 | Total outlays (gross) | 1,889 | 18 | |
| | **Offsets:** | | | |
| | Against gross budget authority and outlays: | | | |
| | Offsetting collections (cash) from: | | | |
| 88.00 | Federal sources | −107 | | |
| 88.40 | Non-Federal sources | 62 | | |
| 88.90 | Total, offsetting collections (cash) | −45 | | |
| | Against gross budget authority only: | | | |
| 88.95 | Change in uncollected customer payments from Federal sources (unexpired) | 4 | | |
| 88.96 | Portion of offsetting collections (cash) credited to expired accounts | −2 | | |
| | **Net budget authority and outlays:** | | | |
| 89.00 | Budget authority | | | |
| 90.00 | Outlays | 1,842 | 18 | |

NASA's "Human Space Flight" account included the International Space Station; Payload and Expendable Launch Vehicle Support; Human Exploration and Development of Space Investments and Support; Space Communications and Data Systems; and Safety, Mission Assurance and Engineering. In FY 2004, these activities—except for Safety, Mission Assurance and Engineering, which was allocated as an indirect charge to all programs—along with the Crosscutting Technologies portion of the Aerospace Technology Enterprise, were

**General and special funds**—Continued

HUMAN SPACE FLIGHT—Continued

included under the "Space Flight Capabilities" account. In FY 2005, the "Space Flight Capabilities" account was renamed the "Exploration Capabilities" account. This account shows spending from balances prior to the account restructuring.

**Object Classification** (in millions of dollars)

| Identification code 80–0111–0–1–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Direct obligations: | | | |
| 23.3 | Communications, utilities, and miscellaneous charges | 4 | | |
| 24.0 | Printing and reproduction | 1 | | |
| 25.1 | Advisory and assistance services | 3 | | |
| 25.2 | Other services | 28 | | |
| 25.3 | Other purchases of goods and services from Government accounts | 8 | | |
| 25.4 | Operation and maintenance of facilities | 475 | | |
| 25.5 | Research and development contracts | 505 | 18 | |
| 25.7 | Operation and maintenance of equipment | 4 | | |
| 26.0 | Supplies and materials | 14 | | |
| 31.0 | Equipment | 8 | | |
| 32.0 | Land and structures | 8 | | |
| 41.0 | Grants, subsidies, and contributions | 2 | | |
| 99.0 | Direct obligations | 1,060 | 18 | |
| 99.0 | Reimbursable obligations | 43 | | |
| 99.9 | Total new obligations | 1,103 | 18 | |

SCIENCE, AERONAUTICS AND TECHNOLOGY

**Program and Financing** (in millions of dollars)

| Identification code 80–0110–0–1–999 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Direct program:** | | | |
| | Direct program: | | | |
| 00.01 | Space science | 346 | 20 | |
| 00.02 | Biological and physical research | 86 | 5 | |
| 00.03 | Earth science | 168 | 10 | |
| 00.04 | Aerospace technology | 283 | 5 | |
| 00.06 | Academic programs | 19 | | |
| 09.01 | Reimbursable program | 152 | | |
| 10.00 | Total new obligations | 1,054 | 40 | |
| | **Budgetary resources available for obligation:** | | | |
| 21.40 | Unobligated balance carried forward, start of year | 1,007 | 40 | |
| 22.00 | New budget authority (gross) | 107 | | |
| 22.10 | Resources available from recoveries of prior year obligations | 500 | | |
| 23.90 | Total budgetary resources available for obligation | 1,614 | 40 | |
| 23.95 | Total new obligations | −1,054 | −40 | |
| 23.98 | Unobligated balance expiring or withdrawn | −520 | | |
| 24.40 | Unobligated balance carried forward, end of year | 40 | | |
| | **New budget authority (gross), detail:** | | | |
| | Spending authority from offsetting collections: | | | |
| | Discretionary: | | | |
| 68.00 | Offsetting collections (cash) | 152 | | |
| 68.10 | Change in uncollected customer payments from Federal sources (unexpired) | −45 | | |
| 68.90 | Spending authority from offsetting collections (total discretionary) | 107 | | |
| | **Change in obligated balances:** | | | |
| 72.40 | Obligated balance, start of year | 4,153 | −106 | |
| 73.10 | Total new obligations | 1,054 | 40 | |
| 73.20 | Total outlays (gross) | −4,081 | −404 | |
| 73.40 | Adjustments in expired accounts (net) | −747 | | |
| 73.45 | Recoveries of prior year obligations | −500 | | |
| 74.00 | Change in uncollected customer payments from Federal sources (unexpired) | 45 | | |
| 74.10 | Change in uncollected customer payments from Federal sources (expired) | −30 | 470 | |
| 74.40 | Obligated balance, end of year | −106 | | |
| | **Outlays (gross), detail:** | | | |
| 86.90 | Outlays from new discretionary authority | 107 | | |
| 86.93 | Outlays from discretionary balances | 3,974 | 404 | |
| 87.00 | Total outlays (gross) | 4,081 | 404 | |
| | **Offsets:** | | | |
| | Against gross budget authority and outlays: | | | |
| | Offsetting collections (cash) from: | | | |
| 88.00 | Federal sources | −225 | | |
| 88.40 | Non-Federal sources | 88 | | |
| 88.90 | Total, offsetting collections (cash) | −137 | | |
| | Against gross budget authority only: | | | |
| 88.95 | Change in uncollected customer payments from Federal sources (unexpired) | 45 | | |
| 88.96 | Portion of offsetting collections (cash) credited to expired accounts | −15 | | |
| | **Net budget authority and outlays:** | | | |
| 89.00 | Budget authority | | | |
| 90.00 | Outlays | 3,944 | 404 | |

NASA's "Science, Aeronautics and Technology" account included Space Science, Biological and Physical Research, Earth Science, Aerospace Technology, and Academic Enterprises. Beginning in 2004, Space Science, Biological and Physical Research, Earth Science, the Aeronautics portion of Aerospace Technology, and Academic Programs (which was renamed Education Programs in FY 2004), were included under the "Science, Aeronautics and Exploration" account. This account shows spending from balances prior to the account restructuring.

**Object Classification** (in millions of dollars)

| Identification code 80–0110–0–1–999 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Direct obligations: | | | |
| 23.3 | Communications, utilities, and miscellaneous charges | 12 | | |
| 24.0 | Printing and reproduction | 1 | | |
| 25.1 | Advisory and assistance services | 23 | | |
| 25.2 | Other services | 114 | | |
| 25.3 | Other purchases of goods and services from Government accounts | 44 | | |
| 25.4 | Operation and maintenance of facilities | 39 | | |
| 25.5 | Research and development contracts | 402 | 40 | |
| 25.7 | Operation and maintenance of equipment | 14 | | |
| 26.0 | Supplies and materials | 26 | | |
| 31.0 | Equipment | 17 | | |
| 32.0 | Land and structures | 31 | | |
| 41.0 | Grants, subsidies, and contributions | 179 | | |
| 99.0 | Direct obligations | 902 | 40 | |
| 99.0 | Reimbursable obligations | 152 | | |
| 99.9 | Total new obligations | 1,054 | 40 | |

MISSION SUPPORT

**Program and Financing** (in millions of dollars)

| Identification code 80–0112–0–1–999 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Obligations by program activity:** | | | |
| 00.03 | Construction of facilities | 6 | 11 | |
| 10.00 | Total new obligations (object class 32.0) | 6 | 11 | |
| | **Budgetary resources available for obligation:** | | | |
| 21.40 | Unobligated balance carried forward, start of year | 14 | 11 | |
| 22.10 | Resources available from recoveries of prior year obligations | 3 | | |
| 23.90 | Total budgetary resources available for obligation | 17 | 11 | |
| 23.95 | Total new obligations | −6 | −11 | |
| 24.40 | Unobligated balance carried forward, end of year | 11 | | |

| | | | | |
|---|---|---|---|---|
| | **Change in obligated balances:** | | | |
| 72.40 | Obligated balance, start of year | 78 | 31 | 31 |
| 73.10 | Total new obligations | 6 | 11 | |
| 73.20 | Total outlays (gross) | −40 | −11 | |
| 73.40 | Adjustments in expired accounts (net) | −9 | | |
| 73.45 | Recoveries of prior year obligations | −3 | | |
| 74.40 | Obligated balance, end of year | 31 | 31 | 31 |
| | **Outlays (gross), detail:** | | | |
| 86.93 | Outlays from discretionary balances | 40 | 11 | |
| | **Net budget authority and outlays:** | | | |
| 89.00 | Budget authority | | | |
| 90.00 | Outlays | 40 | 11 | |

NASA's "Mission Support" account included Research and Program Management and Construction of Facilities (CoF), which have not been included in a separate appropriation since 2001. Those "Mission Support" activities are now budgeted as part of the full costs associated with projects in the Science, aeronautics, and exploration account or the Exploration Capabilities account. This account shows spending from balances prior to the account restructuring.

## Office of Inspector General

For necessary expenses of the Office of Inspector General in carrying out the Inspector General Act of 1978, as amended, ⌊$31,600,000⌋ *$32,400,000. (Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2005.)*

**Program and Financing** (in millions of dollars)

| Identification code 80–0109–0–1–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Obligations by program activity:** | | | |
| 00.01 | Direct program activity | 27 | 31 | 32 |
| 10.00 | Total new obligations | 27 | 31 | 32 |
| | **Budgetary resources available for obligation:** | | | |
| 22.00 | New budget authority (gross) | 27 | 31 | 32 |
| 23.95 | Total new obligations | −27 | −31 | −32 |
| | **New budget authority (gross), detail:** | | | |
| | Discretionary: | | | |
| 40.00 | Appropriation | 27 | 31 | 32 |
| | **Change in obligated balances:** | | | |
| 72.40 | Obligated balance, start of year | 3 | 4 | 5 |
| 73.10 | Total new obligations | 27 | 31 | 32 |
| 73.20 | Total outlays (gross) | −27 | −30 | −32 |
| 74.40 | Obligated balance, end of year | 4 | 5 | 5 |
| | **Outlays (gross), detail:** | | | |
| 86.90 | Outlays from new discretionary authority | 24 | 27 | 28 |
| 86.93 | Outlays from discretionary balances | 3 | 3 | 4 |
| 87.00 | Total outlays (gross) | 27 | 30 | 32 |
| | **Net budget authority and outlays:** | | | |
| 89.00 | Budget authority | 27 | 31 | 32 |
| 90.00 | Outlays | 25 | 30 | 32 |

The mission of the Office of Inspector General is to conduct audits and investigations of agency activities. The Inspector General keeps the Administrator and Congress informed of problems and deficiencies in agency programs and operations.

**Object Classification** (in millions of dollars)

| Identification code 80–0109–0–1–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| 11.1 | Personnel compensation: Full-time permanent | 18 | 19 | 20 |
| 12.1 | Civilian personnel benefits | 7 | 7 | 7 |
| 21.0 | Travel and transportation of persons | 1 | 1 | 1 |
| 26.0 | Supplies and materials | 1 | 4 | 4 |
| 99.9 | Total new obligations | 27 | 31 | 32 |

**Personnel Summary**

| Identification code 80–0109–0–1–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Direct: | | | |
| 1001 | Total compensable workyears: Civilian full-time equivalent employment | 188 | 213 | 213 |

## *Trust Funds*

### Science, Space, and Technology Education Trust Fund

**Unavailable Receipts** (in millions of dollars)

| Identification code 80–8978–0–7–503 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | Receipts: | | | |
| 02.40 | Earnings on investments, Science, space and technology education | 1 | 1 | 1 |
| | Appropriations: | | | |
| 05.00 | Science, space, and technology education trust fund | −1 | −1 | −1 |
| 07.99 | Balance, end of year | | | |

**Program and Financing** (in millions of dollars)

| Identification code 80–8978–0–7–503 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Obligations by program activity:** | | | |
| 00.01 | Direct program activity | | 1 | 1 |
| 10.00 | Total new obligations (object class 41.0) | 1 | 1 | 1 |
| | **Budgetary resources available for obligation:** | | | |
| 22.00 | New budget authority (gross) | 1 | 1 | 1 |
| 23.95 | Total new obligations | −1 | −1 | −1 |
| | **New budget authority (gross), detail:** | | | |
| | Mandatory: | | | |
| 60.26 | Appropriation (trust fund) | 1 | 1 | 1 |
| | **Change in obligated balances:** | | | |
| 73.10 | Total new obligations | 1 | 1 | 1 |
| 73.20 | Total outlays (gross) | −1 | −1 | −1 |
| | **Outlays (gross), detail:** | | | |
| 86.97 | Outlays from new mandatory authority | 1 | 1 | 1 |
| | **Net budget authority and outlays:** | | | |
| 89.00 | Budget authority | 1 | 1 | 1 |
| 90.00 | Outlays | 1 | 1 | 1 |
| | **Memorandum (non-add) entries:** | | | |
| 92.01 | Total investments, start of year: Federal securities: Par value | 14 | 14 | 14 |
| 92.02 | Total investments, end of year: Federal securities: Par value | 14 | 14 | 14 |

### National Space Grant Program

**Program and Financing** (in millions of dollars)

| Identification code 80–8977–0–7–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Obligations by program activity:** | | | |
| 00.01 | Direct Program Activity | | 3 | |
| 10.00 | Total new obligations (object class 41.0) | | 3 | |
| | **Budgetary resources available for obligation:** | | | |
| 21.40 | Unobligated balance carried forward, start of year | 3 | 3 | |
| 23.95 | Total new obligations | | −3 | |
| 24.40 | Unobligated balance carried forward, end of year | 3 | | |

NATIONAL SPACE GRANT PROGRAM—Continued

**Program and Financing** (in millions of dollars)—Continued

| Identification code 80–8977–0–7–252 | | 2004 actual | 2005 est. | 2006 est. |
|---|---|---|---|---|
| | **Change in obligated balances:** | | | |
| 72.40 | Obligated balance, start of year | | | 3 |
| 73.10 | Total new obligations | | 3 | |
| 74.40 | Obligated balance, end of year | | 3 | 3 |
| | **Net budget authority and outlays:** | | | |
| 89.00 | Budget authority | | | |
| 90.00 | Outlays | | | |

ADMINISTRATIVE PROVISIONS

Notwithstanding the limitation on the availability of funds appropriated for "Science, aeronautics and exploration", or "Exploration capabilities" by this appropriations Act, when any activity has been initiated by the incurrence of obligations for construction of facilities or environmental compliance and restoration activities as authorized by law, such amount available for such activity shall remain available until expended. This provision does not apply to the amounts appropriated for institutional minor revitalization and construction of facilities, and institutional facility planning and design.

Notwithstanding the limitation on the availability of funds appropriated for "Science, aeronautics and exploration", or "Exploration capabilities" by this appropriations Act, the amounts appropriated for construction of facilities shall remain available until September 30, [2007] *2008*.

[The unexpired balances of prior appropriations to NASA for activities for which funds are provided under this Act may be transferred to the new account established for the appropriation that provides such activity under this Act. Balances so transferred may be merged with funds in the newly established account and thereafter may be accounted for as one fund under the same terms and conditions but shall remain available for the same period of time as originally appropriated.]

From amounts made available in this Act for these activities, subject to [the] operating plan [procedures] *notification* of the House and Senate Committees on Appropriations, the Administrator may transfer amounts between the "Science, aeronautics, and exploration" account and the "Exploration capabilities" account.

Funds for announced prizes otherwise authorized shall remain available, without fiscal year limitation, until the prize is claimed or the offer is withdrawn. [Funding shall not be made available for Centennial Challenges unless authorized.

Funding made available under the headings "Exploration capabilities" and "Science, aeronautics, and exploration" in this Act shall be governed by the terms and conditions specified in the statement of managers except to the extent changes are made in accordance with the operating plan procedures of the House and Senate Committees on Appropriations.] *(Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2005.)*