

# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

## Federal Funds

### SCIENCE

For necessary expenses, not otherwise provided for, in the conduct and support of science 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; 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; and purchase, lease, charter, maintenance, and operation of mission and administrative aircraft, \$4,441,519,000 to remain available until September 30, 2010: Provided, That 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.

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

Identification code 80-0120-0-1-252	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Direct program activity .....			4,086
09.01 Reimbursable program .....			355
10.00 Total new obligations .....			4,441
<b>Budgetary resources available for obligation:</b>			
22.00 New budget authority (gross) .....			4,441
23.95 Total new obligations .....			-4,441
24.40 Unobligated balance carried forward, end of year .....			
<b>New budget authority (gross), detail:</b>			
Discretionary:			
40.00 Appropriation .....			4,441
<b>Change in obligated balances:</b>			
73.10 Total new obligations .....			4,441
73.20 Total outlays (gross) .....			-2,531
74.40 Obligated balance, end of year .....			1,910
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority .....			2,531
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			4,441
90.00 Outlays .....			2,531

This appropriation provides for the full costs associated with the science activities of the agency, which consist of the programs, or themes, within the Science Mission Directorate. The full costs include all labor, travel, procurement, test and fabrication costs to execute these programs, which provide for all of the research; development; operations; salaries and related expenses; design, repair, rehabilitation, modification of facilities, and construction of new facilities; and other general and administrative activities supporting the themes within this account.

Detailed performance goals associated with these activities are addressed in NASA's detailed budget request, and summaries of these activities are in the NASA chapter of the 2009 President's Budget.

NASA's Science Mission Directorate encompasses four themes: Earth Science, Planetary Science, Heliophysics, and Astrophysics. The Directorate seeks to answer fundamental

questions concerning the ways in which Earth's climate is changing; the comparison of Earth with other planets in the solar system and around other stars; the connections among the Sun, Earth, and heliosphere; and the origin and evolution of planetary systems, the galaxy, and the universe, including the origin and distribution of life in the universe. The Directorate achieves its objectives through robotic flight 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 and objective scientific data and analysis to advance understanding of Earth system processes and phenomena, thus improving prediction and response capabilities for climate, weather, natural hazards, and even human-induced disasters. Employing a constellation of 13 Earth-observing satellites routinely making measurements, NASA continues using the view from space to study the Earth system and improve prediction of Earth system changes and the connection between Earth and its star, the Sun. NASA will be launching seven additional missions over the next several years to further enhance and expand understanding of Earth and its processes. These include missions such as Glory, which is to be launched in 2008 and will fly instruments to extend our measurements of total solar irradiance and provide first-ever measurements of properties of atmospheric aerosols. Other examples are the Orbiting Carbon Observatory and the Aquarius mission (scheduled to be launched in 2008 and 2010, respectively) which will make new, first-of-a-kind global measurements of atmospheric carbon dioxide concentrations and ocean surface salinity, both parameters of known importance to the study of climate change. In addition, the Ocean Surface Topography Mission is set for launch in 2008 and is intended to measure parameters such as sea level height. Other key upcoming missions include the National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP, with an anticipated launch of 2010), the Landsat Data Continuity Mission (planned for launch in 2011), and the Global Precipitation Measurement Mission, which will provide accurate, global rain measurements every three hours and is to be launched in two parts in 2013 and 2014. In a significant new initiative, NASA also will begin implementation of a series of advanced Earth-observing satellite missions based on the recommendations of the National Research Council's Earth Science and Applications Decadal Survey, a recent community-consensus study that identified the most important Earth System Science questions and proposed a sequence of focused satellite missions to advance Earth science. In addition, NASA will support activities to better leverage existing data sources and models in furthering climate and ocean science, as recommended by various community planning documents.

Planetary science seeks to discover the nature and origin of the celestial bodies among which we live and to explore whether life exists beyond Earth. To unlock the solar system's mysteries, NASA will continue its investigation of Mars from orbit and on the surface with a new generation of missions, including launching the 2009 Mars Science Laboratory rover (September 2009 launch, June 2010 arrival), which will dramatically increase in situ exploration capability with analytical laboratories focused on determining if Mars was habitable and if organics are present. The Phoenix mission will land

SCIENCE—Continued

May 25, 2008, to study the northern polar regions of Martian ice-rich area that could provide clues to the history of the planet's evolution and search for organics under the surface. Exploration will continue with the rovers Spirit and Opportunity, as well as the Mars Reconnaissance Orbiter and Mars Odyssey. The investigation of the outer planets will include such missions as the Cassini Saturn orbiter that has continued to return stunning images and revised scientific understanding of the ringed planet and its moons, the Juno mission that will further improve understanding of the origin and evolution of Jupiter (launch in August 2011), and the New Horizons (Pluto) mission which will complete NASA's initial reconnaissance of the solar system. Dawn, launched in September 2007, is on its nine-year mission to investigate in detail 1 Ceres and 4 Vesta, two main-belt asteroids that are among the largest proto-planets remaining intact since the formation of the solar system. MESSENGER, a mission to Mercury, will provide the first images covering the entire planet and collect detailed information on the composition and structure of Mercury's crust, its geologic history, the nature of its thin atmosphere and active magnetosphere, and the makeup of its core and polar materials. NASA exploration of the Moon will be expanded to include a recently selected full class Discovery mission, GRAIL, a moon gravity mapping mission that will advance understanding of the thermal evolution of the Moon, as well as a new series of robotic missions that will significantly increase our knowledge of the Earth's closest neighbor as we prepare for a human return to the Moon.

In seeking to understand the Sun, heliosphere, and planetary environments as a single, connected system, NASA's Heliophysics theme pursues three sets of missions: Solar Terrestrial Probe missions, Living with a Star missions, and Explorer missions. Solar Terrestrial Probe addresses fundamental science questions about the physics of plasma and the flow of mass and energy in the solar system, and includes the development of the Magnetospheric MultiScale mission, with an anticipated launch date not earlier than 2014. Living with a Star missions develop specific knowledge and understanding of those aspects of the Sun-Earth system that directly affect life and society. The first Living with a Star mission, Solar Dynamics Observatory, is planned to launch in December 2008. Radiation Belt Storm Probes, the next Living with a Star mission, has an anticipated launch date not earlier than 2012. The Living with a Star program plans to provide a launch vehicle and one instrument/science investigation for a joint Solar Orbiter Collaboration with the European Space Agency. AIM and THEMIS are two Explorer missions that will study the upper atmosphere of the earth and the magnetic connections and processes of the Earth's magnetosphere. Three other Explorer missions, IBEX, CINDI, and TWINS, are designed to investigate physical conditions and processes of the coupled Sun-Earth system in the heliosphere, ionosphere, and magnetosphere respectively, and will be in prime mission operations during FY09. NASA also intends to select three new Small Explorer missions for formulation.

Within the Astrophysics theme, perplexing and important questions guide NASA's quest to understand the secrets of the universe: How does the universe work? Where did we come from? Are we alone? To answer these questions, 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. Toward this end, the Hubble Servicing Mission 4, scheduled to launch on Atlantis in 2008, will extend the lifetime of critical components of this central data source. Together these missions will enhance NASA's ability to find planets around other stars

and peer deep into the history of the universe and improve understanding of its structure. The Kepler mission will enable the discovery of Earth-size and smaller planets around other stars. The Gamma-ray Large-Area Space Telescope will investigate the high-energy world of black holes and neutron stars. The Joint Dark Energy Mission will provide the most accurate inventory to date of the mysterious dark energy, a major component of the universe and a contributor to its rate of expansion. The James Webb Space Telescope will study the earliest galaxies and some of the first stars formed after the Big Bang.

Object Classification (in millions of dollars)

Identification code 80-0120-0-1-252	2007 actual	2008 est.	2009 est.
Direct obligations:			
Personnel compensation:			
11.1			187
11.3			9
11.5			1
11.9			197
12.1			48
21.0			15
22.0			1
23.2			3
23.3			1
24.0			1
25.1			111
25.2			115
25.3			108
25.4			10
25.5			2,932
25.7			18
26.0			10
31.0			63
32.0			68
41.0			384
99.0			4,085
99.0			356
99.9			4,441

Employment Summary

Identification code 80-0120-0-1-252	2007 actual	2008 est.	2009 est.
Direct:			
1001			1,882
Reimbursable:			
2001			62

AERONAUTICS

For necessary expenses, not otherwise provided for, in the conduct and support of aeronautics 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; 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; and purchase, lease, charter, maintenance, and operation of mission and administrative aircraft, \$446,500,000 to remain available until September 30, 2010: Provided, That 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.

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

Identification code 80-0126-0-1-402	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Direct program activity .....			411
09.01 Reimbursable program .....			35
10.00 Total new obligations .....			446
<b>Budgetary resources available for obligation:</b>			
22.00 New budget authority (gross) .....			446
23.95 Total new obligations .....			-446
<b>New budget authority (gross), detail:</b>			
Discretionary:			
40.00 Appropriation .....			446
<b>Change in obligated balances:</b>			
73.10 Total new obligations .....			446
73.20 Total outlays (gross) .....			-214
74.40 Obligated balance, end of year .....			232
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority .....			214
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			446
90.00 Outlays .....			214

This appropriation provides for the full costs associated with the aeronautics activities of the agency, which consist of the programs, or themes, within the Aeronautics Mission Directorate. The full costs include all labor, travel, procurement, test and fabrication costs to execute these programs, which provide for all of the research; development; operations; salaries and related expenses; design, repair, rehabilitation, modification of facilities, and construction of new facilities; and other general and administrative activities supporting the themes within this account.

Detailed performance goals associated with these activities are addressed in NASA's detailed budget request, and summaries of these activities are in the NASA chapter of the 2009 President's Budget.

NASA's Aeronautics Research Mission Directorate is committed to expanding the boundaries of aeronautical knowledge for the benefit of the nation and the broad aeronautics community. NASA conducts cutting-edge research that includes foundational research across a number of core competencies that support aeronautics and space exploration activities; research in key areas related to the development of advanced aircraft technologies and systems, including those related to aircraft safety, environmental compatibility, and fuel efficiency; and research that supports the Next Generation Air Transportation System in partnership with the Joint Planning and Development Office.

NASA's aeronautics research directly supports the goal and objectives of the National Aeronautics Research and Development Policy that was established by Presidential Executive Order 13419 in December 2006. NASA ensures that it is aligned with the Policy by (1) conducting high-quality, cutting-edge research that benefits the constituents of the entire aeronautics community; (2) disseminating the results of all research to the widest practical and appropriate extent; (3) pursuing a coordinated approach to managing the Nation's research, development, test, and evaluation infrastructure; (4) fostering intellectual partnerships with industry and academia by means of cooperative Space Act Agreements and fully and openly competed research awards that emphasize true collaborations among all partners by means of the NASA Research Announcement; and (5) establishing strong partnerships with other Government agencies and organizations, es-

pecially the Federal Aviation Administration, Department of Defense, and the Joint Planning and Development Office.

NASA's Aeronautics theme consists of three integrated research programs as well as the Aeronautics Test Program that preserves a critical suite of aeronautics test facilities. The Fundamental Aeronautics Program will conduct cutting-edge research that will enable the design of vehicles that fly through any atmosphere at any speed. Because aircraft of the future will need to address multiple and often conflicting design challenges such as noise, emissions, and performance, a key focus will be the development of physics-based, multidisciplinary design, analysis, and optimization tools. Such tools will make it possible to evaluate radically new vehicle designs and to assess, with known uncertainties, the potential impact of innovative concepts and technologies on a vehicle's overall performance.

The Aviation Safety Program builds upon the unique safety-related research capabilities of NASA to develop innovative tools, concepts, methods, and technologies that will improve the intrinsic safety attributes of current and future aircraft, and that will help overcome aviation safety challenges that would otherwise constrain the full realization of the Next Generation Air Transportation System. Such challenges include significant increases in air traffic density, increased reliance on automation, and a greatly increased diversity of air vehicles.

The Airspace Systems Program conducts cutting-edge air traffic management research that will enable the Next Generation Air Transportation System. In partnership with the Joint Planning and Development Office, the program develops the concepts, algorithms, capabilities, and technologies that will lead to the significant enhancements in capacity, efficiency, and flexibility needed to meet the Nations airspace and airportal (gates, taxiways, runways, and final approach airspace) requirements for decades to come.

The Aeronautics Test Program ensures the strategic availability and accessibility of a critical suite of aeronautics test facilities that are deemed necessary to meet aeronautics, Agency, and national needs. Strategic utilization, operations, maintenance, and investment decisions are made for major wind tunnel/ground test facilities at NASA's Ames Research Center, Glenn Research Center, and Langley Research Center, and for the Western Aeronautical Test Range, support/testbed aircraft, and simulation and load laboratories at Dryden Flight Research Center.

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

Identification code 80-0126-0-1-402	2007 actual	2008 est.	2009 est.
<b>Direct obligations:</b>			
Personnel compensation:			
11.1 Full-time permanent .....			143
11.3 Other than full-time permanent .....			7
11.5 Other personnel compensation .....			1
11.9 Total personnel compensation .....			151
12.1 Civilian personnel benefits .....			36
21.0 Travel and transportation of persons .....			4
23.3 Communications, utilities, and miscellaneous charges .....			3
25.1 Advisory and assistance services .....			12
25.2 Other services .....			19
25.3 Other purchases of goods and services from Government accounts .....			12
25.4 Operation and maintenance of facilities .....			13
25.5 Research and development contracts .....			97
25.7 Operation and maintenance of equipment .....			4
26.0 Supplies and materials .....			7
31.0 Equipment .....			17
32.0 Land and structures .....			6
41.0 Grants, subsidies, and contributions .....			30
99.0 Direct obligations .....			411
99.0 Reimbursable obligations .....			35

AERONAUTICS—Continued

Object Classification (in millions of dollars)—Continued

Identification code 80-0126-0-1-402	2007 actual	2008 est.	2009 est.
99.9 Total new obligations .....			446

Employment Summary

Identification code 80-0126-0-1-402	2007 actual	2008 est.	2009 est.
Direct:			
1001 Civilian full-time equivalent employment .....			1,483
Reimbursable:			
2001 Civilian full-time equivalent employment .....			1

EXPLORATION

*For necessary expenses, not otherwise provided for, in the conduct and support of 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; 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; and purchase, lease, charter, maintenance, and operation of mission and administrative aircraft, \$3,500,469,000 to remain available until September 30, 2010: Provided, That 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.*

Program and Financing (in millions of dollars)

Identification code 80-0124-0-1-252	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Direct program activity .....			3,221
09.01 Reimbursable program .....			11
10.00 Total new obligations .....			3,232
<b>Budgetary resources available for obligation:</b>			
22.00 New budget authority (gross) .....			3,500
23.95 Total new obligations .....			-3,232
24.40 Unobligated balance carried forward, end of year .....			268
<b>New budget authority (gross), detail:</b>			
Discretionary:			
40.00 Appropriation .....			3,500
<b>Change in obligated balances:</b>			
73.10 Total new obligations .....			3,232
73.20 Total outlays (gross) .....			-1,925
74.40 Obligated balance, end of year .....			1,307
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority .....			1,925
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			3,500
90.00 Outlays .....			1,925

This appropriation provides for the full costs associated with the exploration activities of the agency, which consist of the programs, or themes, within the Exploration Mission Directorate. The full costs include all labor, travel, procurement, test and fabrication costs to execute these programs, which provide for all of the research; development; operations; salaries and related expenses; design, repair, rehabilitation,

modification of facilities, and construction of new facilities; and other general and administrative activities supporting the themes within this account.

Detailed performance goals associated with these activities are addressed in NASA's detailed budget request, and summaries of these activities are in the NASA chapter of the 2009 President's Budget.

The Exploration Systems Mission Directorate was established to realize the Vision for Space Exploration. Exploration Systems includes two themes that work together to enable sustainable exploration and scientific discovery in the solar system: Constellation Systems and Advanced Capabilities.

The Constellation Systems theme is responsible for developing capabilities essential to making the Vision for Space Exploration a reality. Through Constellation Systems, 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. Human exploration will enable scientific activities and discoveries not obtainable with robotic explorers.

Constellation Systems has built on early architecture studies to develop an increasingly mature design. Prime contractors for most major systems are now in place, and requirements continue to undergo refinement leading up to Preliminary Design Review in 2008. Initial capabilities include the Orion Crew Exploration Vehicle that will transport and support crews traveling beyond low Earth orbit; the Ares I launch vehicle for transporting Orion into space; Extravehicular Activity suits and tools required by the flight crews; and ground and mission operations infrastructure. Following the development of these initial capabilities, Constellation Systems will develop capabilities to support a human mission to the lunar surface by 2020. These capabilities include the Ares V heavy-lift launch vehicle, leveraging engineering design and capabilities from the Shuttle Program; an Earth Departure Stage to propel Orion from low Earth to lunar orbit; a Lunar Surface Access Module to safely transport astronauts to and from the lunar surface; and systems, capabilities, and support for extended human stays on the lunar surface. Future development will provide crew, cargo transportation, and destination support capabilities required for human exploration of Mars and beyond.

An important element of Constellation Systems is the International Space Station commercial crew/cargo services project, also known as Commercial Orbital Transportation Services (COTS). The Vision for Space Exploration called for NASA to pursue commercial opportunities for providing transportation to the International Space Station. The Commercial Orbital Transportation Services project is intended to spur private industry to provide cost-effective cargo delivery to the International Space Station, allowing NASA to focus its internal resources on exploration.

The Advanced Capabilities theme consists of three programs: the Lunar Precursor Robotic Program, the Exploration Technology Development Program, and the Human Research Program. Activities within these programs help prepare for human lunar exploration, test new technologies that enable exploration, and further understanding of the effects of space on human performance. The Lunar Precursor Robotic Program is developing a precursor mission to characterize the lunar environment.

The Lunar Reconnaissance Orbiter and Lunar Crater Observing and Sensing Satellite, scheduled to launch in October 2008, will seek to find safe landing sites, locate potential resources, characterize the radiation environment, and demonstrate new technology. The Lunar Precursor Robotic Program will work with the Science Mission Directorate and international partners on future missions to ensure that NASA gains the data it needs to ensure safe and cost-effective future exploration. The Exploration Technology Development

Program makes focused investments in innovations to reduce the cost and expand the capabilities of future space exploration missions. The Human Research Program focuses on ensuring the health, safety, and productivity of humans embarking on missions of exploration in the solar system. Projects advance knowledge 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.

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

Identification code 80-0124-0-1-252	2007 actual	2008 est.	2009 est.
<b>Direct obligations:</b>			
<b>Personnel compensation:</b>			
11.1 Full-time permanent .....			274
11.3 Other than full-time permanent .....			18
11.5 Other personnel compensation .....			2
11.9 Total personnel compensation .....			294
12.1 Civilian personnel benefits .....			75
21.0 Travel and transportation of persons .....			18
22.0 Transportation of things .....			103
23.3 Communications, utilities, and miscellaneous charges .....			5
24.0 Printing and reproduction .....			1
25.1 Advisory and assistance services .....			133
25.2 Other services .....			51
25.3 Other purchases of goods and services from Government accounts .....			52
25.4 Operation and maintenance of facilities .....			82
25.5 Research and development contracts .....			2,108
25.7 Operation and maintenance of equipment .....			41
26.0 Supplies and materials .....			22
31.0 Equipment .....			37
32.0 Land and structures .....			94
41.0 Grants, subsidies, and contributions .....			105
99.0 Direct obligations .....			3,221
99.0 Reimbursable obligations .....			11
99.9 Total new obligations .....			3,232

**Employment Summary**

Identification code 80-0124-0-1-252	2007 actual	2008 est.	2009 est.
<b>Direct:</b>			
1001 Civilian full-time equivalent employment .....			2,935

**EDUCATION**

*For necessary expenses, not otherwise provided for, in carrying out aerospace and aeronautical education research and development activities, including research, development, operations, support, and services; program management; personnel and related costs, uniforms or allowances therefor, as authorized by 5 U.S.C. 5901-5902; travel expenses; purchase and hire of passenger motor vehicles; and purchase, lease, charter, maintenance, and operation of mission and administrative aircraft, \$115,600,000, to remain available until September 30, 2010.*

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

Identification code 80-0128-0-1-503	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Direct program activity .....			106
10.00 Total new obligations .....			106
<b>Budgetary resources available for obligation:</b>			
22.00 New budget authority (gross) .....			116
23.95 Total new obligations .....			-106
24.40 Unobligated balance carried forward, end of year .....			10
<b>New budget authority (gross), detail:</b>			
<b>Discretionary:</b>			
40.00 Appropriation .....			116

<b>Change in obligated balances:</b>			
73.10 Total new obligations .....			106
73.20 Total outlays (gross) .....			-29
74.40 Obligated balance, end of year .....			77
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority .....			29
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			116
90.00 Outlays .....			29

This appropriation provides for the full costs associated with the education activities of the agency, which consist of the programs, or themes, within the Education Mission Directorate. The full costs include all labor, travel, and procurement costs to execute these programs, which provide for all general and administrative activities supporting this mission.

Detailed performance goals associated with these activities are addressed in NASA's detailed budget request, and summaries of these activities are in the NASA chapter of the 2009 President's Budget.

NASA's Education program works to inspire and educate students at all levels to pursue careers in the fields of science, technology, engineering, and mathematics, while also engaging the education community to reach this goal. The Education portfolio demonstrates a commitment to science, technology, engineering, and mathematics education to ensure that the next generation of explorers and innovators is fully prepared to join NASA's workforce while contributing to national needs. NASA's objectives are to (1) provide elementary and secondary students and teachers with NASA-related education opportunities; (2) support higher education research capability and opportunities that attract and prepare students and faculty for NASA-related careers; (3) provide students, teachers, faculty, and researchers from underrepresented and underserved communities with opportunities in NASA-related science and technology fields; (4) and increase 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 80-0128-0-1-503	2007 actual	2008 est.	2009 est.
<b>Direct obligations:</b>			
11.1 Personnel compensation: Full-time permanent .....			4
12.1 Civilian personnel benefits .....			1
25.1 Advisory and assistance services .....			4
25.2 Other services .....			8
25.4 Operation and maintenance of facilities .....			1
25.5 Research and development contracts .....			1
25.7 Operation and maintenance of equipment .....			2
32.0 Land and structures .....			85
99.9 Total new obligations .....			106

**Employment Summary**

Identification code 80-0128-0-1-503	2007 actual	2008 est.	2009 est.
<b>Direct:</b>			
1001 Civilian full-time equivalent employment .....			42

**CROSS AGENCY SUPPORT**

*For necessary expenses, not otherwise provided for, in the conduct and support of science, aeronautics, exploration, space operations and education research and development activities, including research, development, operations, support, and services; maintenance; construc-*

CROSS AGENCY SUPPORT—Continued

tion 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; 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 \$70,000 for official reception and representation expenses; and purchase, lease, charter, maintenance, and operation of mission and administrative aircraft, \$3,299,902,000, to remain available until September 30, 2010: Provided, That 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: Provided further, That the previous proviso does not apply to the amounts appropriated for institutional minor revitalization and minor construction of facilities, and institutional facility planning and design, for which funding shall be available until September 30, 2011.

Program and Financing (in millions of dollars)

Identification code 80–0122–0–1–252	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Direct program activity			3,036
09.01 Reimbursable program			28
10.00 Total new obligations			3,064
<b>Budgetary resources available for obligation:</b>			
22.00 New budget authority (gross)			3,300
23.95 Total new obligations			–3,064
24.40 Unobligated balance carried forward, end of year			236
<b>New budget authority (gross), detail:</b>			
Discretionary:			
40.00 Appropriation			3,300
<b>Change in obligated balances:</b>			
73.10 Total new obligations			3,064
73.20 Total outlays (gross)			–1,584
74.40 Obligated balance, end of year			1,480
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority			1,584
<b>Net budget authority and outlays:</b>			
89.00 Budget authority			3,300
90.00 Outlays			1,584

This appropriation provides for the Agency supporting functions associated with the science, aeronautics, education, space operations, and exploration activities of the agency. This account provides for the research; development; operations; salaries and related expenses; design, repair, rehabilitation, modification of facilities, and construction of new facilities; and other general and administrative activities supporting the themes within the five other program accounts.

Cross Agency Support provides a strategic focus for managing agency mission support functions and some of NASA's unique research facilities. This budget area consists of three themes: Center Management and Operations, Agency Management and Operations, and Institutional Investments.

The Center Management and Operations theme includes the basic costs to manage and operate each of the nine NASA field centers and to maintain the technical capabilities required to support the Agency's Mission. This budget theme is not directly identified or aligned to a specific program or project requirement, but is necessary for efficient and effective administration and operation of the NASA Centers.

The Agency Management and Operations theme provides for the management and oversight of Agency missions, func-

tions, and the performance of some Agency-wide activities and unique research capabilities and facilities. Theme responsibilities include the determination of programs and projects; establishment of management policies, procedures, and performance criteria; evaluation of progress; and the coordination and integration of all phases of the Agency's mission. The five major programs included in this theme are Agency Management, Safety and Mission Success, Agency IT Services, Innovative Partnerships Program, and Strategic Capability Asset Program.

The Institutional Investments theme provides for Agency budget for design and execution of non-programmatic Discrete and Minor Revitalization Construction of Facilities projects, Facility Demolition Projects, and Environmental Compliance and Restoration activities.

Object Classification (in millions of dollars)

Identification code 80–0122–0–1–252	2007 actual	2008 est.	2009 est.
Direct obligations:			
Personnel compensation:			
11.1 Full-time permanent			703
11.3 Other than full-time permanent			47
11.5 Other personnel compensation			37
11.8 Special personal services payments			1
11.9 Total personnel compensation			788
12.1 Civilian personnel benefits			206
13.0 Benefits for former personnel			4
21.0 Travel and transportation of persons			34
22.0 Transportation of things			4
23.1 Rental payments to GSA			22
23.2 Rental payments to others			2
23.3 Communications, utilities, and miscellaneous charges			68
24.0 Printing and reproduction			4
25.1 Advisory and assistance services			190
25.2 Other services			358
25.3 Other purchases of goods and services from Government accounts			40
25.4 Operation and maintenance of facilities			398
25.5 Research and development contracts			339
25.6 Medical care			5
25.7 Operation and maintenance of equipment			289
26.0 Supplies and materials			33
31.0 Equipment			54
32.0 Land and structures			173
41.0 Grants, subsidies, and contributions			25
99.0 Direct obligations			3,036
99.0 Reimbursable obligations			28
99.9 Total new obligations			3,064

Employment Summary

Identification code 80–0122–0–1–252	2007 actual	2008 est.	2009 est.
Direct:			
1001 Civilian full-time equivalent employment			7,928
Reimbursable:			
2001 Civilian full-time equivalent employment			16

【EXPLORATION CAPABILITIES】 SPACE OPERATIONS

For necessary expenses, not otherwise provided for, in the conduct and support of 【exploration capabilities】 space operations research and development activities, including research, development, operations, support and services; space flight, spacecraft control and communications activities including operations, production, 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; 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, **[\$6,733,700,000] \$5,774,710,000**, to remain available until September 30, **[2009: Provided, That of the amounts provided under this heading, \$4,000,000,000 shall be for Space Shuttle operations, production, research, development, and support and \$2,220,000,000 shall be for International Space Station operations, production, research, development, and support: *Provided further, That amounts funded under this heading shall be reduced by \$32,000,000 in corporate and general administrative expenses and the reduction shall be applied proportionally to each amount therein*] 2010: *Provided, That 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. (Science Appropriations Act, 2008.)***

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

Identification code 80-0115-0-1-252	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Space operations .....	6,447	6,631	5,294
09.01 Reimbursable program .....	343	437	390
10.00 Total new obligations .....	6,790	7,068	5,684
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance carried forward, start of year	700	609	692
22.00 New budget authority (gross) .....	6,612	7,151	6,211
22.10 Resources available from recoveries of prior year obligations .....	91		
23.90 Total budgetary resources available for obligation	7,403	7,760	6,903
23.95 Total new obligations .....	-6,790	-7,068	-5,684
23.98 Unobligated balance expiring or withdrawn .....	-4		
24.40 Unobligated balance carried forward, end of year	609	692	1,219
<b>New budget authority (gross), detail:</b>			
Discretionary:			
40.00 Appropriation .....	6,166	6,734	5,775
40.36 Unobligated balance permanently reduced .....		-19	
43.00 Appropriation (total discretionary) .....	6,166	6,715	5,775
Spending authority from offsetting collections:			
58.00 Offsetting collections (cash) .....	301	436	436
58.10 Change in uncollected customer payments from Federal sources (unexpired) .....	144		
58.90 Spending authority from offsetting collections (total discretionary) .....	445	436	436
Mandatory:			
62.00 Transferred from other accounts .....	1		
70.00 Total new budget authority (gross) .....	6,612	7,151	6,211
<b>Change in obligated balances:</b>			
72.40 Obligated balance, start of year .....	1,838	1,725	1,521
73.10 Total new obligations .....	6,790	7,068	5,684
73.20 Total outlays (gross) .....	-6,690	-7,272	-6,497
73.40 Adjustments in expired accounts (net) .....	-4		
73.45 Recoveries of prior year obligations .....	-91		
74.00 Change in uncollected customer payments from Federal sources (unexpired) .....	-144		
74.10 Change in uncollected customer payments from Federal sources (expired) .....	26		
74.40 Obligated balance, end of year .....	1,725	1,521	708
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority .....	4,508	5,134	4,479
86.93 Outlays from discretionary balances .....	2,182	2,138	2,018
87.00 Total outlays (gross) .....	6,690	7,272	6,497
<b>Offsets:</b>			
Against gross budget authority and outlays:			
Offsetting collections (cash) from:			
88.00 Federal sources .....	-44	-336	-336
88.40 Non-Federal sources .....	-271	-100	-100
88.90 Total, offsetting collections (cash) .....	-315	-436	-436
Against gross budget authority only:			
88.95 Change in uncollected customer payments from Federal sources (unexpired) .....	-144		

88.96	Portion of offsetting collections (cash) credited to expired accounts .....	14		
<b>Net budget authority and outlays:</b>				
89.00	Budget authority .....	6,167	6,715	5,775
90.00	Outlays .....	6,375	6,836	6,061

This appropriation provides for the full costs associated with the space operations activities of the agency, which consist of the programs, or themes, within the Space Operations Mission Directorate. The full costs include all labor, travel, procurement, test and fabrication costs to execute these programs, which provide for all of the research; development; operations; salaries and related expenses; design, repair, rehabilitation, modification of facilities, and construction of new facilities; and other general and administrative activities supporting the themes within this account.

Detailed performance goals associated with these activities are addressed in NASA's detailed budget request, and summaries of these activities are in the NASA chapter of the 2009 President's Budget.

The International Space Station is a complex of research laboratories in low Earth orbit in which American, Russian, Canadian, European, and Japanese astronauts are conducting unique scientific and technological investigations in a micro-gravity environment. The objective of the Space Station is to support human space exploration. The on-orbit assembly of the Space Station is over 60% complete, and all of the U.S. flight elements required to finish assembly by the end of the decade have completed development. NASA plans to continue assembly of the Space Station in 2009, including the truss and power segments and the addition of the International Partner modules. The 2009 President's Budget provides funding for Space Station launch processing activities, on-orbit assembly culminating in a crew of six by mid-2009, and continuation of research payload and experiment deliveries to orbit. It also includes funding for development of habitability modifications, the purchasing of additional spares to be stowed on the Space Station for use after Space Shuttle retirement in 2010, and completion of the regenerative environmental control and life support system needed to increase the crew capacity. The increased crew capacity will facilitate human space exploration research.

The Space Shuttle program's mission is to support space exploration by completing the assembly of the International Space Station by the end of the decade. The 2009 President's Budget request assumes the Space Shuttle will fly four missions in 2009, and provides specific program investments for vehicle safety and supportability needed to maintain a viable Shuttle fleet until its retirement in 2010. The 2009 Budget request will allow NASA to combat flight hardware obsolescence, maintain ground systems and facilities, and to continue progress towards an orderly phase-out of the program no later than September 30, 2010. In addition, the Shuttle program will support the Space Operations and Exploration Systems Mission Directorates to leverage select Shuttle flight hardware and ground systems to advance the development of the Orion Crew Exploration Vehicle, the Ares I Crew Launch Vehicle, and the Ares V Heavy Lift Launch Vehicle.

Space and Flight Support is comprised of four separate programs that provide on-going customer support for a wide range of services. The programs include Space Communications, Launch Services, Rocket Propulsion Testing, and Crew Health and Safety, and are provided to a wide range of customers including NASA, other U.S. federal agencies, foreign governments, and commercial customers. The services are critical for enabling the conduct of space exploration, aeronautical research, and physiological research. In 2009, funding for the Agency's space communications and navigation infrastructure will be consolidated within the Space Operations' Office of Space Communications and Navigation in

**[EXPLORATION CAPABILITIES] SPACE OPERATIONS—Continued**

order to initiate the transition to a unified mission support architecture to better serve Exploration requirements. The 2009 President's Budget also supports service continuity for the Tracking and Data Relay Satellite System, including two new satellites scheduled to launch in the 2013 timeframe.

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

Identification code 80-0115-0-1-252	2007 actual	2008 est.	2009 est.
<b>Direct obligations:</b>			
<b>Personnel compensation:</b>			
11.1 Full-time permanent .....	594	615	316
11.3 Other than full-time permanent .....	55	57	37
11.5 Other personnel compensation .....	18	18	3
11.9 Total personnel compensation .....	667	690	356
12.1 Civilian personnel benefits .....	173	179	90
13.0 Benefits for former personnel .....	2	2	
21.0 Travel and transportation of persons .....	27	28	16
22.0 Transportation of things .....	20	20	20
23.1 Rental payments to GSA .....	9	9	
23.2 Rental payments to others .....	2	3	2
23.3 Communications, utilities, and miscellaneous charges .....	69	71	45
24.0 Printing and reproduction .....	4	4	2
25.1 Advisory and assistance services .....	88	90	16
25.2 Other services .....	304	311	96
25.3 Other purchases of goods and services from Government accounts .....	116	119	100
25.4 Operation and maintenance of facilities .....	2,112	2,164	1,947
25.5 Research and development contracts .....	2,251	2,320	2,165
25.6 Medical care .....	2	2	
25.7 Operation and maintenance of equipment .....	250	256	160
26.0 Supplies and materials .....	48	49	36
31.0 Equipment .....	185	190	176
32.0 Land and structures .....	106	109	62
41.0 Grants, subsidies, and contributions .....	14	15	5
99.0 Direct obligations .....	6,449	6,631	5,294
99.0 Reimbursable obligations .....	341	437	390
99.9 Total new obligations .....	6,790	7,068	5,684

**Employment Summary**

Identification code 80-0115-0-1-252	2007 actual	2008 est.	2009 est.
<b>Direct:</b>			
1001 Civilian full-time equivalent employment .....	5,748	5,791	3,540
<b>Reimbursable:</b>			
2001 Civilian full-time equivalent employment .....	52	11	11

**OFFICE OF INSPECTOR GENERAL**

For necessary expenses of the Office of Inspector General in carrying out the Inspector General Act of 1978, **[\$32,600,000]** \$35,500,000, to remain available until September 30, **[2009] 2010.** (Science Appropriations Act, 2008.)

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

Identification code 80-0109-0-1-252	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Direct program activity .....	33	33	35
10.00 Total new obligations .....	33	33	35
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance carried forward, start of year .....	2		
22.00 New budget authority (gross) .....	32	33	36
23.90 Total budgetary resources available for obligation .....	34	33	36
23.95 Total new obligations .....	-33	-33	-35
23.98 Unobligated balance expiring or withdrawn .....	-1		
24.40 Unobligated balance carried forward, end of year .....			1

**New budget authority (gross), detail:**  
Discretionary:

40.00 Appropriation .....	32	33	36
<b>Change in obligated balances:</b>			
72.40 Obligated balance, start of year .....	5	7	7
73.10 Total new obligations .....	33	33	35
73.20 Total outlays (gross) .....	-32	-33	-36
73.40 Adjustments in expired accounts (net) .....	1		
74.40 Obligated balance, end of year .....	7	7	6
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority .....	28	29	32
86.93 Outlays from discretionary balances .....	4	4	4
87.00 Total outlays (gross) .....	32	33	36
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....	32	33	36
90.00 Outlays .....	32	33	36

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

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

Identification code 80-0109-0-1-252	2007 actual	2008 est.	2009 est.
<b>Direct obligations:</b>			
11.1 Personnel compensation: Full-time permanent .....	19	20	20
12.1 Civilian personnel benefits .....	8	8	8
21.0 Travel and transportation of persons .....	1	1	1
26.0 Supplies and materials .....	5	4	6
99.9 Total new obligations .....	33	33	35

**Employment Summary**

Identification code 80-0109-0-1-252	2007 actual	2008 est.	2009 est.
<b>Direct:</b>			
1001 Civilian full-time equivalent employment .....	199	213	213

**[SCIENCE, AERONAUTICS AND EXPLORATION]**

**[For necessary expenses 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, \$10,543,100,000, to remain available until September 30, 2009: *Provided*, That, of the amounts provided under this heading, \$5,577,310,000 shall be for science, \$625,280,000 shall be for aeronautics research, \$3,842,010,000 shall be for exploration systems, and \$556,400,000 shall be for cross-agency support programs: *Provided further*, That the amounts in the previous proviso shall be reduced by \$57,900,000 in corporate and general administrative expenses and the reduction shall be applied proportionally to each amount therein: *Provided further*, That none of the funds under this heading shall be used for any research, development, or demonstration activities related exclusively to the human exploration of Mars.]** (Science Appropriations Act, 2008.)

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

Identification code 80-0114-0-1-999	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			



00.04	Aeronautics .....	690	657	67
00.06	Science .....	5,531	5,611	432
00.07	Exploration systems .....	3,408	4,111	324
00.08	Cross-agency supt .....	532	571	31
09.01	Reimbursable program .....	558	939	
10.00	Total new obligations .....	10,719	11,889	854

**Budgetary resources available for obligation:**

21.40	Unobligated balance carried forward, start of year	1,387	1,758	854
22.00	New budget authority (gross)	10,818	10,985	
22.10	Resources available from recoveries of prior year obligations	281		
23.90	Total budgetary resources available for obligation	12,486	12,743	854
23.95	Total new obligations	-10,719	-11,889	-854
23.98	Unobligated balance expiring or withdrawn	-9		
24.40	Unobligated balance carried forward, end of year	1,758	854	

**New budget authority (gross), detail:**

<b>Discretionary:</b>				
40.00	Appropriation .....	10,086	10,543	
40.36	Unobligated balance permanently reduced .....		-173	
43.00	Appropriation (total discretionary) .....	10,086	10,370	
Spending authority from offsetting collections:				
58.00	Offsetting collections (cash) .....	424	615	
58.10	Change in uncollected customer payments from Federal sources (unexpired) .....	308		
58.90	Spending authority from offsetting collections (total discretionary) .....	732	615	
70.00	Total new budget authority (gross) .....	10,818	10,985	

**Change in obligated balances:**

72.40	Obligated balance, start of year .....	5,112	5,495	6,342
73.10	Total new obligations .....	10,719	11,889	854
73.20	Total outlays (gross) .....	-9,755	-11,042	-5,730
73.40	Adjustments in expired accounts (net) .....	-16		
73.45	Recoveries of prior year obligations .....	-281		
74.00	Change in uncollected customer payments from Federal sources (unexpired) .....	-308		
74.10	Change in uncollected customer payments from Federal sources (expired) .....	24		
74.40	Obligated balance, end of year .....	5,495	6,342	1,466

**Outlays (gross), detail:**

86.90	Outlays from new discretionary authority .....	5,009	5,986	
86.93	Outlays from discretionary balances .....	4,746	5,056	5,730
87.00	Total outlays (gross) .....	9,755	11,042	5,730

**Offsets:**

<b>Against gross budget authority and outlays:</b>				
Offsetting collections (cash) from:				
88.00	Federal sources .....	-121	-540	
88.40	Non-Federal sources .....	-331	-75	
88.90	Total, offsetting collections (cash) .....	-452	-615	
<b>Against gross budget authority only:</b>				
88.95	Change in uncollected customer payments from Federal sources (unexpired) .....	-308		
88.96	Portion of offsetting collections (cash) credited to expired accounts .....	28		
<b>Net budget authority and outlays:</b>				
89.00	Budget authority .....	10,086	10,370	
90.00	Outlays .....	9,303	10,427	5,730

NASA's Science, Aeronautics and Exploration account formerly included Science, Aeronautics Research, Exploration Systems and Cross Agency Support Programs. Beginning in 2009, Science, Aeronautics, Exploration, Education and Cross Agency Support were split into five separate appropriation accounts. The Science, Aeronautics, and Exploration account shows spending from balances prior to the account restructuring.

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

Identification code 80-0114-0-1-999	2007 actual	2008 est.	2009 est.
<b>Direct obligations:</b>			
Personnel compensation:			
11.1	Full-time permanent .....	1,036	1,072
11.3	Other than full-time permanent .....	66	68
11.5	Other personnel compensation .....	26	27
11.8	Special personal services payments .....		1
11.9	Total personnel compensation .....	1,128	1,168
12.1	Civilian personnel benefits .....	286	296
13.0	Benefits for former personnel .....	3	4
21.0	Travel and transportation of persons .....	55	57
22.0	Transportation of things .....	105	107
23.1	Rental payments to GSA .....	14	14
23.2	Rental payments to others .....	5	5
23.3	Communications, utilities, and miscellaneous charges .....	56	57
24.0	Printing and reproduction .....	5	5
25.1	Advisory and assistance services .....	437	448
25.2	Other services .....	561	575
25.3	Other purchases of goods and services from Government accounts .....	233	238
25.4	Operation and maintenance of facilities .....	341	350
25.5	Research and development contracts .....	5,393	6,048
25.6	Medical care .....	3	3
25.7	Operation and maintenance of equipment .....	288	295
26.0	Supplies and materials .....	73	75
31.0	Equipment .....	178	182
32.0	Land and structures .....	298	306
41.0	Grants, subsidies, and contributions .....	700	717
99.0	Direct obligations .....	10,162	10,950
99.0	Reimbursable obligations .....	557	939
99.9	Total new obligations .....	10,719	11,889

**Employment Summary**

Identification code 80-0114-0-1-999	2007 actual	2008 est.	2009 est.
<b>Direct:</b>			
1001	Civilian full-time equivalent employment .....	12,091	12,029
<b>Reimbursable:</b>			
2001	Civilian full-time equivalent employment .....	122	69

HUMAN SPACE FLIGHT

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

Identification code 80-0111-0-1-252	2007 actual	2008 est.	2009 est.
<b>Direct program:</b>			
00.03	Investments and support .....	4	
10.00	Total new obligations (object class 33.0) .....	4	
<b>Budgetary resources available for obligation:</b>			
21.40	Unobligated balance carried forward, start of year	4	1
22.10	Resources available from recoveries of prior year obligations	1	
23.90	Total budgetary resources available for obligation	5	1
23.95	Total new obligations	-4	
24.40	Unobligated balance carried forward, end of year	1	1
<b>Change in obligated balances:</b>			
72.40	Obligated balance, start of year .....	41	26
73.10	Total new obligations .....	4	
73.20	Total outlays (gross) .....	-15	-12
73.45	Recoveries of prior year obligations .....	-1	
74.10	Change in uncollected customer payments from Federal sources (expired) .....	-3	
74.40	Obligated balance, end of year .....	26	14
<b>Outlays (gross), detail:</b>			
86.93	Outlays from discretionary balances .....	15	12
<b>Offsets:</b>			
Against gross budget authority and outlays:			
Offsetting collections (cash) from:			

HUMAN SPACE FLIGHT—Continued

Program and Financing (in millions of dollars)—Continued

Identification code 80-0111-0-1-252	2007 actual	2008 est.	2009 est.
88.00 Federal sources .....	1		
88.40 Non-Federal sources .....	-1		
88.90 Total, offsetting collections (cash) .....			
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			
90.00 Outlays .....	15	12	6

NASA's Human Space Flight account formerly included the International Space Station; Space Shuttle Payload and Expandable Launch Vehicle Support; Human Exploration and Development of Space Investments and Support; Space Communications and Data Systems; and Safety, Mission Assurance and Engineering. Beginning in 2004, Safety, Mission Assurance, and Engineering was allocated as an indirect charge to all programs and all other programs (along with the Crosscutting Technologies portion of the Aerospace Technology Enterprise) were rolled into the Space Flight Capabilities account. In 2005, the Space Flight Capabilities account was renamed the Exploration Capabilities account. The Human Space Flight account shows spending from balances prior to the account restructuring.

SCIENCE, AERONAUTICS AND TECHNOLOGY

Program and Financing (in millions of dollars)

Identification code 80-0110-0-1-999	2007 actual	2008 est.	2009 est.
<b>Direct program:</b>			
00.04 Construction of facilities .....	6		
10.00 Total new obligations (object class 25.5) .....	6		
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance carried forward, start of year	11	5	5
23.95 Total new obligations .....	-6		
24.40 Unobligated balance carried forward, end of year	5	5	5
<b>Change in obligated balances:</b>			
72.40 Obligated balance, start of year .....	259	102	67
73.10 Total new obligations .....	6		
73.20 Total outlays (gross) .....	-146	-35	-35
73.40 Adjustments in expired accounts (net) .....	-10		
74.10 Change in uncollected customer payments from Federal sources (expired) .....	-7		
74.40 Obligated balance, end of year .....	102	67	32
<b>Outlays (gross), detail:</b>			
86.93 Outlays from discretionary balances .....	146	35	35
<b>Offsets:</b>			
Against gross budget authority and outlays:			
Offsetting collections (cash) from:			
88.00 Federal sources .....	32		
88.40 Non-Federal sources .....	-30		
88.90 Total, offsetting collections (cash) .....	2		
Against gross budget authority only:			
88.96 Portion of offsetting collections (cash) credited to expired accounts .....	-2		
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			
90.00 Outlays .....	148	35	35

NASA's Science, Aeronautics and Technology account formerly included Space Science, Biological and Physical Research, Earth Science, Aerospace Technology, and Education. Beginning in 2004, Space Science, Biological and Physical

Research, Earth Science, the Aeronautics portion of Aerospace Technology, and Education were rolled into the Science, Aeronautics and Exploration account. The Science, Aeronautics, and Technology account shows spending from balances prior to the account restructuring.

MISSION SUPPORT

Program and Financing (in millions of dollars)

Identification code 80-0112-0-1-999	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.03 Construction of facilities .....	3		
10.00 Total new obligations (object class 32.0) .....	3		
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance carried forward, start of year	6	3	3
23.95 Total new obligations .....	-3		
24.40 Unobligated balance carried forward, end of year	3	3	3
<b>Change in obligated balances:</b>			
72.40 Obligated balance, start of year .....	9	8	6
73.10 Total new obligations .....	3		
73.20 Total outlays (gross) .....	-3	-2	-1
73.40 Adjustments in expired accounts (net) .....	-1		
74.40 Obligated balance, end of year .....	8	6	5
<b>Outlays (gross), detail:</b>			
86.93 Outlays from discretionary balances .....	3	2	1
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			
90.00 Outlays .....	3	2	1

NASA's Mission Support account formerly included Research and Program Management and Construction of Facilities. 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. The Mission Support account shows spending from balances prior to the account restructuring.

WORKING CAPITAL FUND

Program and Financing (in millions of dollars)

Identification code 80-4546-0-4-252	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
09.00 Reimbursable program .....	45	83	83
10.00 Total new obligations (object class 25.2) .....	45	83	83
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance carried forward, start of year	11	17	17
22.00 New budget authority (gross) .....	51	83	83
23.90 Total budgetary resources available for obligation	62	100	100
23.95 Total new obligations .....	-45	-83	-83
24.40 Unobligated balance carried forward, end of year	17	17	17
<b>New budget authority (gross), detail:</b>			
Discretionary:			
58.00 Spending authority from offsetting collections: Offsetting collections (cash) .....	51	83	83
<b>Change in obligated balances:</b>			
72.40 Obligated balance, start of year .....	23	22	35
73.10 Total new obligations .....	45	83	83
73.20 Total outlays (gross) .....	-46	-70	-82
74.40 Obligated balance, end of year .....	22	35	36
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new discretionary authority .....	35	41	41

86.93	Outlays from discretionary balances .....	11	29	41
87.00	Total outlays (gross) .....	46	70	82
<b>Offsets:</b>				
Against gross budget authority and outlays:				
Offsetting collections (cash) from:				
88.00	Federal sources .....	8	-35	-35
88.40	Non-Federal sources .....	-59	-48	-48
88.90	Total, offsetting collections (cash) .....	-51	-83	-83
<b>Net budget authority and outlays:</b>				
89.00	Budget authority .....			
90.00	Outlays .....	-5	-13	-1

The Working Capital Fund provides goods and services on a reimbursable basis. The Fund finances Scientific & Engineering Workstation Procurement and the NASA Shared Services Center. The Shared Services Center commenced operation in 2006 and performs selected financial management, human resources, information technology, and procurement services for NASA Headquarters and Centers.

**Trust Funds**

SCIENCE, SPACE, AND TECHNOLOGY EDUCATION TRUST FUND

**Special and Trust Fund Receipts** (in millions of dollars)

Identification code 80-8978-0-7-503	2007 actual	2008 est.	2009 est.
01.00 Balance, start of year .....	14	14	14
01.99 Balance, start of year .....	14	14	14
<b>Receipts:</b>			
02.00 Earnings on Investments, Science, Space and Technology Education Trust Fund .....	1	1	1
04.00 Total: Balances and collections .....	15	15	15
<b>Appropriations:</b>			
05.00 Science, Space, and Technology Education Trust Fund .....	-1	-1	-1
07.99 Balance, end of year .....	14	14	14

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

Identification code 80-8978-0-7-503	2007 actual	2008 est.	2009 est.
<b>Obligations by program activity:</b>			
00.01 Direct program activity .....	1	1	1
10.00 Total new obligations (object class 41.0) .....	1	1	1
<b>Budgetary resources available for obligation:</b>			
22.00 New budget authority (gross) .....	1	1	1
23.95 Total new obligations .....	-1	-1	-1
<b>New budget authority (gross), detail:</b>			
Mandatory:			
60.26 Appropriation (trust fund) .....	1	1	1
<b>Change in obligated balances:</b>			
73.10 Total new obligations .....	1	1	1
73.20 Total outlays (gross) .....	-1	-1	-1
<b>Outlays (gross), detail:</b>			
86.97 Outlays from new mandatory authority .....	1	1	1
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....	1	1	1
90.00 Outlays .....	1	1	1
<b>Memorandum (non-add) entries:</b>			
92.01 Total investments, start of year: Federal securities:			
Par value .....	14	14	15
92.02 Total investments, end of year: Federal securities:			
Par value .....	14	15	15

NATIONAL SPACE GRANT PROGRAM

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

Identification code 80-8977-0-7-252	2007 actual	2008 est.	2009 est.
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance carried forward, start of year .....	3	3	3
24.40 Unobligated balance carried forward, end of year .....	3	3	3
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			
90.00 Outlays .....			

ADMINISTRATIVE PROVISIONS

(INCLUDING TRANSFER OF FUNDS)

[Notwithstanding the limitation on the duration of availability of funds appropriated for "Science, Aeronautics and Exploration" or "Exploration Capabilities" under this title, 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 minor 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, 2010.]

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.]

Not to exceed 5 percent of any appropriation made available for the current fiscal year for the National Aeronautics and Space Administration in this Act may be transferred between such appropriations, but no such appropriation, except as otherwise specifically provided, shall be increased by more than 10 percent by any such transfers. Any transfer pursuant to this provision shall be treated as a reprogramming of funds under section 505 of this Act and shall not be available for obligation except in compliance with the procedures set forth in that section.

[Notwithstanding any other provision of law, no funds shall be used to implement any Reduction in Force or other involuntary separations (except for cause) by the National Aeronautics and Space Administration prior to September 30, 2008.]

The Administrator of the National Aeronautics and Space Administration shall prepare a strategy for minimizing job losses when the National Aeronautics and Space Administration transitions from the Space Shuttle to a successor human-rated space transport vehicle. This strategy shall include: (1) specific initiatives that the National Aeronautics and Space Administration has undertaken, or plans to undertake, to maximize the utilization of existing civil service and contractor workforces at each of the affected Centers; (2) efforts to equitably distribute tasks and workload between the Centers to mitigate the brunt of job losses being borne by only certain Centers; (3) new workload, tasks, initiatives, and missions being secured for the affected Centers; and (4) overall projections of future civil service and contractor workforce levels at the affected Centers. The Administrator shall transmit this strategy to Congress not later than 90 days after the date of enactment of this Act. The Administrator shall update and transmit to Congress this strategy not less than every six months thereafter until the successor human-rated space transport vehicle is fully operational.

For fiscal year 2009 and hereafter, the National Aeronautics and Space Administration shall provide, at a minimum, the following information in its annual budget justification:

(1) The actual, current, proposed funding level, and estimated budgets for the next five fiscal years by directorate, theme, program, project and activity within each appropriations account.

(2) The proposed programmatic and non-programmatic construction of facilities.

(3) The budget for headquarters including—

ADMINISTRATIVE PROVISIONS—Continued  
(INCLUDING TRANSFER OF FUNDS)—Continued

(A) the budget by office, and any division thereof, for the actual, current, proposed funding level, and estimated budgets for the next five fiscal years;

(B) the travel budget for each office, and any division thereof, for the actual, current, and proposed funding level; and

(C) the civil service full time equivalent assignments per headquarters office, and any division thereof, including the number of Senior Executive Service, noncareer, detailee, and contract personnel per office.

(4) Within 14 days of the submission of the budget to the Congress an accompanying volume shall be provided to the Committees on Appropriations containing the following information for each center, facility managed by any center, and federally funded research and development center operated on behalf of the National Aeronautics and Space Administration:

(A) The actual, current, proposed funding level, and estimated budgets for the next five fiscal years by directorate, theme, program, project, and activity.

(B) The proposed programmatic and non-programmatic construction of facilities.

(C) The number of civil service full time equivalent positions per center for each identified fiscal year.

(D) The number of civil service full time equivalent positions considered to be uncovered capacity at each location for each identified fiscal year.

(5) The proposed budget as designated by object class for each directorate, theme, and program.

(6) Sufficient narrative shall be provided to explain the request for each program, project, and activity, and an explanation for any deviation to previously adopted baselines for all justification materials provided to the Committees.

The Administrator of the National Aeronautics and Space Administration shall submit quarterly reports to the Inspector General of the National Aeronautics and Space Administration regarding the costs and contracting procedures relating to each conference or meeting, held by the National Aeronautics and Space Administration during fiscal year 2008 for which the cost to the Government was more than \$20,000.

Each report submitted shall include, for each conference described in that subsection held during the applicable quarter—

(1) a description of the number of and purpose of participants attending that conference or meeting;

(2) a detailed statement of the costs to the Government relating to that conference or meeting, including—

(A) the cost of any food or beverages;

(B) the cost of any audio-visual services;

(C) the cost of all related travel; and

(D) a discussion of the methodology used to determine which costs relate to that conference or meeting; and

(3) a description of the contracting procedures relating to that conference or meeting, including—

(A) whether contracts were awarded on a competitive basis; and

(B) a discussion of any cost comparison conducted by the National Aeronautics and Space Administration in evaluating potential contractors for any conference or meeting.

The Administrator of NASA shall, not later than September 30, 2008, submit to the appropriate committees of Congress a report on each conference for which the agency paid travel expenses during fiscal year 2008 that includes—

(1) the itemized expenses paid by the agency, including travel expenses and any agency expenditure to otherwise support the conference;

(2) the primary sponsor of the conference;

(3) the location of the conference;

(4) in the case of a conference for which the agency was the primary sponsor, a statement that—

(A) justifies the location selected;

(B) demonstrates the cost efficiency of the location;

(C) the date of the conference;

(D) a brief explanation how the conference advanced the mission of the agency; and

(E) the total number of individuals who travel or attendance at the conference was paid for in part or full by the agency.

In this provision, the term conference means a meeting that—

(1) is held for consultation, education, awareness, or discussion;

(2) includes participants who are not all employees of the same agency;

(3) is not held entirely at an agency facility;

(4) involves costs associated with travel and lodging for some participants; and

(5) is sponsored by 1 or more agencies, 1 or more organizations that are not agencies, or a combination of such agencies or organizations.】

*The unexpired balances of the Science, Aeronautics, and Exploration account, for activities for which funds are provided under this Act, may be transferred to the new accounts established in this Act that provide such activity. Balances so transferred shall be merged with the funds in the newly established accounts, but shall be available under the same terms, conditions and period of time as previously appropriated.*

*For closeout of all Space Shuttle contracts and associated programs, sums in Human Space Flight, Space Flight Capabilities, and Exploration Capabilities appropriation accounts expiring in 2003 or later are to remain available through 2015 for the disbursement of termination costs. (Science Appropriations Act, 2008.)*

【(RESCISSION)】

【Of the unobligated balances available to the National Aeronautics and Space Administration from prior year appropriations, \$192,475,000 are rescinded: *Provided*, That within 30 days after the date of the enactment of this section the Administrator shall submit to the Committees on Appropriations a report specifying the amount of each rescission made pursuant to this section.】 *(Commerce, Justice, Science, and Related Agencies Appropriations Act, 2008.)*

**GENERAL FUND RECEIPT ACCOUNT**

(in millions of dollars)

	2007 actual	2008 est.	2009 est.
Offsetting receipts from the public:			
80-322000 All Other General Fund Proprietary Receipts			
Including Budget Clearing Accounts .....	11	15	15
General Fund Offsetting receipts from the public .....	11	15	15