

# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

## Federal Funds

### General and special funds:

#### HUMAN SPACE FLIGHT

For necessary expenses, not otherwise provided for, in the conduct and support of human space flight research and development activities, including research, development, operations, and services; maintenance; construction of facilities including repair, rehabilitation, and modification of real and personal property, and acquisition or condemnation of real property, as authorized by law; space flight, spacecraft control and communications activities including operations, production, and services; and purchase, lease, charter, maintenance and operation of mission and administrative aircraft, **[\$5,480,000,000]** \$5,638,000,000, to remain available until September 30, **[2000]** 2001.

For necessary expenses of the International Space Station, to become available on October 1 of the fiscal year specified and remain available for that and the following fiscal year, as follows: for fiscal year 2001, \$2,328,000,000; for fiscal year 2002, \$2,091,000,000; for fiscal year 2003, \$1,721,000,000; and for fiscal year 2004, \$1,573,000,000. (Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.)

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

Identification code 80-0111-0-1-252	1998 actual	1999 est.	2000 est.
<b>Obligations by program activity:</b>			
Direct program:			
00.01 Space station .....	2,360	2,397	2,474
00.03 Payload and utilization operations .....	223	184	168
00.04 Space shuttle .....	2,932	2,896	2,987
09.01 Reimbursable program .....	61	209	205
10.00 Total new obligations .....	5,576	5,686	5,834
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance available, start of year .....	226	271	274
22.00 New budget authority (gross) .....	5,621	5,689	5,843
23.90 Total budgetary resources available for obligation .....	5,847	5,960	6,117
23.95 Total new obligations .....	-5,576	-5,686	-5,834
24.40 Unobligated balance available, end of year .....	271	274	283
<b>New budget authority (gross), detail:</b>			
Current:			
40.00 Appropriation .....	5,507	5,480	5,638
42.00 Transferred from other accounts .....	53		
43.00 Appropriation (total) .....	5,560	5,480	5,638
Permanent:			
Spending authority from offsetting collections:			
68.00 Offsetting collections (cash) .....	66	209	205
68.10 From Federal sources: Change in receivables and unpaid, unfilled orders .....	-5		
68.90 Spending authority from offsetting collections (total) .....	61	209	205
70.00 Total new budget authority (gross) .....	5,621	5,689	5,843
<b>Change in unpaid obligations:</b>			
Unpaid obligations, start of year:			
72.40 Obligated balance, start of year .....	1,700	1,662	1,613
72.95 From Federal sources: Receivables and unpaid, unfilled orders .....	28	23	23
72.99 Total unpaid obligations, start of year .....	1,728	1,685	1,636
73.10 Total new obligations .....	5,576	5,686	5,834
73.20 Total outlays (gross) .....	-5,617	-5,735	-5,733
Unpaid obligations, end of year:			
74.40 Obligated balance, end of year .....	1,662	1,613	1,714
74.95 From Federal sources: Receivables and unpaid, unfilled orders .....	23	23	23
74.99 Total unpaid obligations, end of year .....	1,685	1,636	1,737

<b>Outlays (gross), detail:</b>			
86.90 Outlays from new current authority .....	3,768	3,655	3,761
86.93 Outlays from current balances .....	1,778	1,871	1,767
86.97 Outlays from new permanent authority .....	37	209	205
86.98 Outlays from permanent balances .....	34		
87.00 Total outlays (gross) .....	5,617	5,735	5,733
<b>Offsets:</b>			
Against gross budget authority and outlays:			
Offsetting collections (cash) from:			
88.40 Non-Federal sources .....	-26	-19	-58
88.45 Offsetting governmental collections .....	-40	-190	-147
88.90 Total, offsetting collections (cash) .....	-66	-209	-205
88.95 From Federal sources: Change in receivables and unpaid, unfilled orders .....	5		
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....	5,560	5,480	5,638
90.00 Outlays .....	5,551	5,526	5,528

This appropriation provides funding for human space flight activities, including development of the Space Station, the Space Station research program, and operation of the Space Shuttle. This includes support of planned cooperative activities with Russia, upgrades to the performance and safety of the Space Shuttle, and required construction projects in direct support of Space Station and Space Shuttle programs.

### Performance Objectives

**Space Station.**—The International Space Station (ISS) will be an international laboratory in low Earth orbit on which American, Russian, Canadian, European, and Japanese astronauts will conduct unique scientific and technological investigations in a microgravity environment. The goal of the Station is to support activities requiring the unique attributes of humans in space and establish a permanent human presence in Earth orbit. The proposed budget provides multi-year funding through an advanced appropriation for the continued development of the vehicle and its research components and for current operations, assembly and utilization of the Station. With the first launches successfully completed, the budget includes funding to keep subsequent assembly missions on schedule for completion in 2004 and provide a long-term solution to the safe return of the full complement of Station crewmembers in the event of an emergency.

In 1998, preparations for the successful launches of the first two components of the Station—the FGB control module and the first node—were completed. The elements were launched in November and December, assembled in orbit and activated. Flight hardware elements for the next four U.S. assembly launches—the Z1 truss, the control moment gyros, the first photo-voltaic array and battery sets, initial thermal radiators, communication equipment, the U.S. Laboratory, and the Multi-Purpose Logistics Carrier—were delivered in preparation for multi-element integrated testing (MEIT). Crew training, payload processing, hardware element processing, and mission operations were supported. In 1999, fabrication of flight hardware, qualification testing, assembly, integration and mission operations will all continue. The laboratory module will be delivered and MEIT for flights through 6A, the outfitting of the lab module, will be initiated. Two logistics flights will be launched to the Station, as will the Russian Service Module. In 2000, plans are to launch seven U.S. missions to Station, including the lab module. The Russian launch of a Soyuz vehicle will achieve the capability

**General and special funds—Continued**

**HUMAN SPACE FLIGHT—Continued**

of permanent occupation of the Station with rotating crews of three. Phase 2 of the Station assembly will be completed with the launch of the airlock, and preparations will continue for the start of Phase 3 and increasing research utilization in 2001.

As part of the FY 1999 operating plan, Russian Program Assurance (RPA) was re-established within the Space Station budget line. The RPA funding provides contingency activities to address ISS program requirements resulting from delays or shortfalls on the part of Russia in meeting its commitments to the ISS program. The first step in the contingency plan is to protect against a potential further delay in the Russian Service Module (SM) and its capabilities. The ISS program is purchasing, from the U.S. Naval Research Laboratory (NRL), an interim control module (ICM) to provide backup attitude control and reboost functions for the ISS. Additionally, the Shuttle fleet is being configured for reaction control system (RCS) interconnectivity modifications to enable greater Shuttle reboost capability to the ISS. A permanent U.S. propulsion capability is being developed for implementation in the 2002 timeframe. This includes a propulsion module, carriers, and activities to support propulsion logistics.

*Payload and Utilization Operations.*—Spacelab program funds support the mission planning and hardware preparation activities required to support the Spacelab payloads and experiment infrastructure. In 1998, one Spacelab module mission (Neurolab) was flown, along with one pallet mission. The Spacelab program was completed in 1998 following the Neurolab mission. In FY 1998, Multi-Purpose Experiment Support Structures (MPES), pallets and other common support equipment were transferred to the Payload Processing budget. All other Spacelab hardware has been dispositioned.

Activities funded by the Payload Processing budget support the required technical expertise and facilities to perform the payload buildup, test and checkout, integration, servicing, transportation and installation in the launch vehicle. In FY 1999, launch and landing payload support activities will be provided for six Space Shuttle missions, including two pallet missions, the AXAF launch, and three assembly flights for the ISS. In FY 2000, launch and landing payload support activities will be provided for eight Space Shuttle missions, including seven ISS assembly and utilization flights. During this period, eight pallets will be used in Space Shuttle missions, including the third HST servicing mission and three of the ISS assembly flights. In FY 1999 and 2000 over 20 major and secondary payloads will be supported, including major hardware for ISS assembly.

The Expendable Launch Vehicle (ELV) Mission Support budget provides funds for acquiring requisite launch services to meet all NASA requirements and for technical insight of commercially provided launch services. Advanced mission design/analysis and leading edge integration services are provided for the full range of NASA missions under consideration for launch on ELVs. During FY 1998, two Pegasus launches, SNOE and TRACE, were launched along with one Titan 11 provided by the USAF; and the pathfinder activity was accomplished for the first launch of an Atlas-Centaur from a new launch site at Vandenberg Air Force Base. Support for 13 missions, including EOS-AM-1, Landsat-7, and four planetary missions are planned for launch in FY 1999 and integration and technical management of 24 payloads are planned for launch in FY 2000 and FY 2001 are supported.

Advanced Projects pursues advanced technology developments for future human space flight requirements. Under this program, the X-38 experimental vehicle is being designed to demonstrate the technology and processes required to produce a crew return vehicle for the ISS. Beginning in FY

1999, funding for Advanced Projects other than X-38 and X-38 transition costs were terminated. The Engineering and Technical Base provides basic engineering and technical capabilities to support the NASA mission assigned to the program carried out by the Human Space Flight Centers. These funds support a core capability dedicated to multi-program laboratories, test facilities and associated systems, including a skill base to respond to research, testing and simulation needs.

*Space Shuttle.*—The Space Shuttle is a partially reusable space vehicle that provides several unique capabilities to the United States space program. These include retrieving payloads from orbit for reuse, servicing and repairing satellites in space, safely transporting humans to and from space, launching International Space Station components and providing an assembly platform in space, and operating and returning space laboratories. The six flights manifested for FY 1999 include a major microgravity payload, the Space Shuttle's first assembly flight of the International Space Station, two additional space station assembly and supply flights, the deployment of the Advanced X-Ray Astrophysics Facility (AXAF), and the Shuttle Radar Topography mission, a joint DOD/NASA Radar payload to digitally map the Earth.

Eight flights will be flown during FY 2000, including seven International Space Station Space assembly flights. In addition, the Space Shuttle will make its third visit to the Hubble Space Telescope for replacement of mission critical components and routine servicing and upgrading some of its instrument sensors with state-of-the art detectors and cameras. Upgrades to the Shuttle to increase its safety, reliability and maintainability will be continued.

*Account Structure.*—As directed in the FY 1999 VA/HUD-Independent Appropriations Act (P.L. 105–276), NASA is prepared to support a revised account structure for “Human Space Flight.” The new structure would split “Human Space Flight” into two accounts, “International Space Station” and “Launch Vehicles and Payload Operations.” A crosswalk between the “Human Space Flight” account and these two new accounts is provided below.

Crosswalk to Two Account Structure  
(In millions of dollars of BA)

	1998 actual	1999 est.	2000 est.
International Space Station .....	2,441	2,305	2,483
Launch Vehicles and Payload Operations .....	3,118	3,175	3,155

However, because almost all scheduled future Space Shuttle flights support International Space Station development and because common operations and facilities will increase as the International Space Station moves into its operational phase, the two-account structure would be an obstacle to more integrated and efficient management of these programs and lower costs. For these reasons, the Administration proposes maintaining the single “Human Space Flight” account.

Object Classification (in millions of dollars)

Identification code 80–0111–0–1–252	1998 actual	1999 est.	2000 est.
Direct obligations:			
22.0 Transportation of things .....	8	8	8
23.3 Communications, utilities, and miscellaneous charges .....	45	45	46
24.0 Printing and reproduction .....	3	3	3
25.1 Advisory and assistance services .....	1,669	1,658	1,703
25.2 Other services .....	334	332	341
25.3 Purchases of goods and services from Government accounts .....	101	100	103
25.4 Operation and maintenance of facilities .....	125	124	128
25.5 Research and development contracts .....	2,841	2,821	2,900
25.7 Operation and maintenance of equipment .....	51	51	52
26.0 Supplies and materials .....	77	76	79
31.0 Equipment .....	84	83	86
32.0 Land and structures .....	153	152	156
41.0 Grants, subsidies, and contributions .....	24	24	24
99.0 Subtotal, direct obligations .....	5,515	5,477	5,629

99.0	Reimbursable obligations .....	61	209	205
99.9	Total new obligations .....	5,576	5,686	5,834

SCIENCE, AERONAUTICS AND TECHNOLOGY

For necessary expenses, not otherwise provided for, in the conduct and support of science, aeronautics and technology research and development activities, including research, development, operations, and services; maintenance; construction of facilities including repair, rehabilitation, and modification of real and personal property, and acquisition or condemnation of real property, as authorized by law; space flight, spacecraft control and communications activities including operations, production, and services; and purchase, lease, charter, maintenance and operation of mission and administrative aircraft, **[\$5,653,900,000] \$5,424,700,000**, to remain available until September 30, **[2000] 2001**. (*Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.*)

(in millions of dollars)

Identification code: 80-0110-0-1-999	1998 actual	1999 est.	2000 est.	
<b>Obligations by program activity:</b>				
Direct program:				
00.01	Space science .....	1,980	2,131	2,189
00.02	Life and microgravity science .....	240	250	257
00.06	Earth science .....	1,553	1,387	1,455
00.07	Mission communication services .....	404	345	404
00.08	Academic programs .....	136	150	104
00.09	Aero-space technology .....	1,483	1,226	1,038
09.01	Reimbursable program .....	508	599	577
10.00	Total new obligations .....	6,304	6,088	6,024
<b>Budgetary resources available for obligation:</b>				
21.40	Unobligated balance available, start of year .....	508	401	566
22.00	New budget authority (gross) .....	6,198	6,253	6,002
23.90	Total budgetary resources available for obligation .....	6,706	6,654	6,568
23.95	Total new obligations .....	-6,304	-6,088	-6,024
24.40	Unobligated balance available, end of year .....	401	566	544
<b>New budget authority (gross), detail:</b>				
Current:				
40.00	Appropriation .....	5,690	5,654	5,425
Permanent:				
Spending authority from offsetting collections:				
68.00	Offsetting collections (cash) .....	559	599	577
68.10	From Federal sources: Change in receivables and unpaid, unfilled orders .....	-51		
68.90	Spending authority from offsetting collections (total) .....	508	599	577
70.00	Total new budget authority (gross) .....	6,198	6,253	6,002
<b>Change in unpaid obligations:</b>				
Unpaid obligations, start of year:				
72.40	Obligated balance, start of year .....	3,222	2,997	2,620
72.95	From Federal sources: Receivables and unpaid, unfilled orders .....	305	254	254
72.99	Total unpaid obligations, start of year .....	3,527	3,251	2,874
73.10	Total new obligations .....	6,304	6,088	6,024
73.20	Total outlays (gross) .....	-6,574	-6,465	-5,864
73.40	Adjustments in expired accounts .....	-6		
Unpaid obligations, end of year:				
74.40	Obligated balance, end of year .....	2,997	2,620	2,781
74.95	From Federal sources: Receivables and unpaid, unfilled orders .....	254	254	254
74.99	Total unpaid obligations, end of year .....	3,251	2,874	3,035
<b>Outlays (gross), detail:</b>				
86.90	Outlays from new current authority .....	2,861	2,550	2,447
86.93	Outlays from current balances .....	3,160	3,316	2,840
86.97	Outlays from new permanent authority .....	230	599	577
86.98	Outlays from permanent balances .....	323		
87.00	Total outlays (gross) .....	6,574	6,465	5,864

<b>Offsets:</b>				
Against gross budget authority and outlays:				
Offsetting collections (cash) from:				
88.40	Non-Federal sources .....	-38	-41	-41
88.45	Offsetting governmental collections .....	-521	-558	-536
88.90	Total, offsetting collections (cash) .....	-559	-599	-577
88.95	From Federal sources: Change in receivables and unpaid, unfilled orders .....	51		
<b>Net budget authority and outlays:</b>				
89.00	Budget authority .....	5,690	5,654	5,425
90.00	Outlays .....	6,015	5,866	5,287

This appropriation provides for the research and development activities of the National Aeronautics and Space Administration. Funds are included for the construction, maintenance, and operation of programmatic facilities. Space Science, Earth Science, Life and Microgravity Science, Aeronautics, and Space Transportation programs are included in the 21st Century Research Fund.

**Performance Objectives**

*Space Science.*—The Space Science program seeks to answer fundamental questions concerning: the galaxy and the universe; the connection between the Sun, Earth and heliosphere; the origin and evolution of planetary systems; and, the origin and distribution of life in the universe. The Space Science program is comprised of a base program of research and development activities, including research and flight mission activities, and major space-based facilities.

In 1998, the Space Science program produced many notable scientific accomplishments. Measurement of light from distant exploding stars led teams to conclude that the universe will expand forever at an increasing rate. This discovery was characterized by the editors of Science magazine, the journal of the American Association for the Advancement of Science, as the top scientific advance of 1998. The Rossi X-ray Timing Explorer (RXTE) discovered a new type of star, known as a magnetar, which generates extremely powerful magnetic fields. The Hubble Space Telescope (HST) continued to produce many discoveries, including the first potential direct image of an extrasolar planet, and, working with RXTE and the Beppo-Sax mission, detected the largest explosion since the Big Bang. The Keck telescope imaged the formation of a new solar system. Within our own solar system, the Mars Global Surveyor mission photographed portions of Mars with unprecedented clarity, revealing ancient riverbeds and numerous geological structures. The Lunar Prospector spacecraft detected the presence of water ice on the moon. This discovery has important implications for future exploration mission concepts. The Solar and Heliospheric Observatory produced spectacular images of comets plunging into the Sun, and also detected solar quakes. Also in the field of solar science, the Transition Region and Coronal Explorer produced the sharpest images to date of magnetic reconnections on the Sun. Near the end of FY 1998, and in early FY 1999, the New Millennium Deep Space-1 mission, the Submillimeter Wave Astronomy Satellite, the Mars Climate Orbiter, and the Mars Polar Lander were launched successfully. These launches both capped off a highly successful year and initiated a period in which nine Space Science missions will be launched over a seven-month period. Other missions to be launched in this period include the Stardust mission, the Wide Field Infrared Explorer, the Far Ultraviolet Spectroscopy Explorer, and the Advanced X-Ray Astrophysics Facility.

To capitalize on these enormous successes during the past year, the NASA budget request for FY 2000 once again highlights Space Science. Space Science continues to focus on the Origins program and fundamental questions regarding the creation of the universe and planetary systems and the possibility of life on Earth. Planning continues for the deployment

**General and special funds—Continued**

## SCIENCE, AERONAUTICS AND TECHNOLOGY—Continued

of powerful telescopes to detect Earth-like planets beyond our solar system, for the 2003 launch of a mission to directly observe subsurface oceans on Europa, and for future missions to seek evidence of past or present life on Mars. The Space Science program is responsible for Agency-wide core technology development, and additional funding is provided in this program to enhance these Origins missions and enable other future missions through the Administration's IT initiative and other high-leverage technologies. These technologies will increase the return of the Space Science program and other NASA programs many fold through revolutionary capabilities in the areas of networking, intelligent systems, nanotechnology, communications, lightweight structures, miniaturization, mobility, and propulsion for robotic spacecraft and rovers.

The Advanced X-ray Astrophysics Facility (AXAF) will be launched in April 1999. Development activities continue on the Relativity (Gravity Probe-B) mission, which is scheduled for launch in 2000. The Space Infrared Telescope Facility (SIRTF) initiated development in April 1998, with launch planned for December 2001. Development activities on the Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics (TIMED) mission continue in 1999, with launch planned in 2000. Development activities on the Stratospheric Observatory for Infrared Astronomy (SOFIA) continue as planned. The upgraded Hubble Space Telescope (HST) is providing new insights into our universe. Funding for HST continues to support operations, as well as preparation for the third servicing mission in 2000.

In Explorer missions, development activities continue in the Far Ultraviolet Spectroscopy Explorer (FUSE), scheduled for launch in 1999. Development is also underway for the Microwave Anisotropy Probe (MAP) and Imager for Magnetosphere-to-Aurora Global Exploration (IMAGE) Medium-Class Explorer (MIDEX) missions. MAP will be launched in November 2000, IMAGE in January 2000. Three Small (SMEX) missions started development in FY 1998: the High Energy Spectroscopic Imager (HESSI) is to launch in 2000; the Galaxy Evolution Explorer (GALEX) will launch in 2001; and the Two Wide-Angle Neutral Atom Spectrometers (TWINS) has been selected as mission of opportunity, to be launched in 2002 and 2004. These missions emphasize reduced mission costs and accelerated launch schedules.

The Mars Global Surveyor entered Mars orbit in September 1997, the Mars Climate Orbiter was launched in December 1998 and the Mars Polar Lander was launched in January 1999. Funds are requested for the development of future Mars missions to be launched in 2001 and beyond. The third Discovery-class mission, Lunar Prospector, launched in 1998, and has completed its primary mission. The fourth Discovery mission, Stardust, is on schedule for launch in February 1999. Two Discovery missions selected in 1997 are proceeding on schedule: the Comet Nucleus Tour (CONTOUR) will begin development in FY 2000 and will be launched in 2002; the Genesis solar wind sample return mission has begun development and will be launched in 2001.

The New Millennium program is providing flight demonstrations of critical new technologies which will reduce the mass and cost of future science and spacecraft subsystems, while maintaining or improving mission capabilities. The Deep Space-1 mission was launched in October 1998 and has validated its technologies. The Deep Space-2 mission was launched along with the Mars Polar Lander in January 1999, and will arrive at Mars in December 1999.

*Life and Microgravity Science.*—This program uses the microgravity environment of space to conduct basic and applied research to understand the effect of gravity on living

systems and to conduct research in the areas of fluid physics, combustion science, fundamental physics materials science and biotechnology. In FY 1999, the program has flown one science mission (STS-95) on a Spacelab carrier with ISS precursor science experiments. STS-95 included commercially sponsored research as well as research on the effects of aging conducted with the National Institute on Aging. FY 1999 has also seen the beginning of ISS assembly. In FY 2000 the U.S. laboratory module for the ISS will be launched, which will allow initial Life and Microgravity hardware and experiments to be established aboard the ISS and will begin a new era of research. As assembly of the ISS continues to advance, ISS Crew Health Care System (CHECS) components will be utilized to provide on-orbit medical, environmental, and countermeasure capabilities for all ISS crew members. In early FY 2001, the program will fly a dedicated Space Shuttle research mission which will extend previous Space Shuttle research results and help the program as well as the community to prepare for increasing research operations on the ISS.

*Earth Science.*—The purpose of NASA's Earth Science (ES) enterprise is to understand the total Earth system and the effects of natural and human-induced changes on the global environment. ES is pioneering the new interdisciplinary field of research called Earth system science, which recognizes that the Earth's land surface, oceans, atmosphere, ice sheets and *biota* are both dynamic and highly interactive. Earth system science is an area of research with the potential for immense benefit to the nation, yielding new knowledge and tools for weather forecasting, agriculture, urban and land use planning, and other areas of economic and environmental importance. In concert with other agencies and the global research community, ES is providing the scientific foundation needed for the complex policy choices that lie ahead on the road to sustainable development. ES has established three broad goals to fulfill its purpose: (1) expand scientific knowledge of the Earth system using NASA's unique capabilities from the vantage points of space, aircraft and *in situ* platforms; (2) disseminate information about the Earth system; and, (3) enable productive use of ES science and technology in the public and private sectors.

In 1998, the Earth Science program continued to make great progress analyzing data from significant scientific events detected from orbiting spacecraft and scientific campaigns. Multiple spacecraft and instruments have played an important role in predicting the El Niño event and will continue to track a possible La Niña. Images derived from the TOPEX-Poseidon satellite allowed the public to watch the progression of El Niño across the Pacific Ocean. Radarsat brought the first detailed radar map of Antarctica. A cooperative mission with Japan, the Tropical Rainfall Measuring Mission (TRMM) was launched and has proven to be valuable for both scientific research and development of new weather forecasting capabilities. ES has been monitoring fires worldwide including those in Indonesia, Mexico and Russia and the results are available via the Internet. The Sea-viewing Wide Field-of-view Sensor (SeaWiFS), which became fully operational as part of a data purchase from the private sector, provided important data on coastal up-welling in the Northwest, Argentina, and South Africa related to dramatic plankton blooms, a critical food source for fish. These data are used to understand the role of oceans in removing carbon dioxide from the atmosphere and the ocean's productivity.

The Earth Observing System (EOS), the centerpiece of Earth Science, is a program of multiple spacecraft, supporting technology and interdisciplinary science investigations to provide a long-term data set of key parameters needed to understand global climate change. The first EOS satellite launches will begin in 1999 with the launches of Landsat-7, AM-1, and QuikSCAT. EOS PM-1 and Chemistry are on schedule

to launch in 2000 and 2002 respectively. Preceding the EOS are a number of individual satellite and Shuttle-based missions which are helping to reveal basic processes.

Complementing EOS, under the Earth Probes Program, will be a series of small, rapid development Earth System Science Pathfinder (ESSP) missions to study emerging science questions and to use innovative measurement techniques in support of EOS. The first two ESSP missions, Vegetation Canopy Lidar (VCL) and Gravity Recovery and Climate Experiment (GRACE), are scheduled for launch in 2000 and 2001, respectively. The next ESSP missions were selected in December 1998. NASA has chosen for development one primary and two alternate small spacecraft missions. The Pathfinder Instruments for Cloud and Aerosol Spaceborne Observations - Climatologie Etendue des Nuages et des Aerosols (PICASSO-CENA) mission, led by NASA's Langley Research Center, will be the next ESSP mission scheduled for launch in 2003.

Data from Earth Science missions, both current and future, will be captured, processed into useful information, and broadly distributed by the EOS Data Information System (EOSDIS). EOSDIS will ensure that data from these diverse missions remain available in active archives for use by current and future scientists. Since these data are expected to find uses well beyond the Earth Science research community, EOSDIS will ultimately be accessible by environmental decision-makers, resource managers, commercial firms, social scientists and the general academic community, educators, state and local government—anyone who wants the information.

The ES science program is essential to the discovery of new concepts and to the design of future missions. ES research is coordinated through the U.S. Global Change Research Program (USGCRP), the Committee on the Environment and Natural Resources (CENR) and its Subcommittee on Global Change Research, and the various boards and committees at the National Academy of Sciences.

*Aero-Space Technology.*—The mission of this Enterprise is to pioneer the identification, development, verification, transfer, application, and commercialization of high-payoff aerospace technologies. Through its research and technology accomplishments, Aero-Space Technology promotes economic growth and national security through a safe, efficient national aviation system and affordable, reliable space transportation. To meet this challenge, the Enterprise has established three pillars for success. Within these three pillars, a set of ten objectives, each with its own roadmap, has been defined to address current and future National needs. The technologies associated with these objectives are pre-competitive, long-term, high-risk research endeavors with high-payoff in terms of market growth, safety, low acquisition cost, consumer affordability and cleaner environment. The goals of this Enterprise directly support national policy in Aero-Space, documented in "Goals for a National Partnership in Aeronautics Research and Technology" and the 1994 National Space Transportation Policy.

The first Pillar, Global Civil Aviation, addresses the fundamental, systemic issues in the aviation system to ensure continued growth and development appropriate to the needs of the national and global economies. These systemic issues—safety, capacity, environmental compatibility, and affordability—cut across markets including large subsonic civil transports, air cargo, commuter and general aviation, and rotorcraft. The second Pillar, Revolutionary Technology Leaps, will revolutionize air travel and the way in which aircraft are designed, built, and operated, and addresses the challenges in General Aviation, Design Tools, and Experimental Planes. The Third Pillar, Access to Space, will enable greater commercial potential of space and the expansion of space research and exploration by significantly reducing the cost of space transportation systems while improving reliability, operability, responsiveness, and safety.

The accomplishments over the past year provide a foundation for longer term technology development to address national needs. Great strides have been made in Aviation Safety. In FY 1998, non-destructive inspection prototypes that locate cracks, corrosion and disbonds in aircraft fuselages were demonstrated and the technology transferred to industry. An airborne coherent Light Detection And Ranging (LIDAR) system for advanced in-flight measurements demonstrated its capability to precisely detect the turbulence level one kilometer ahead of the airplane. The Aviation Safety program in FY 2000 will demonstrate technologies for a real time graphical display of weather in the cockpit.

NASA has made similar strides toward other aviation goals. In FY 1998, innovative concepts were demonstrated that showed promise in significantly reducing aviation noise. Advanced low NOx combustor concepts demonstrated a 50% reduction in NOx in flame tube tests, and showed potential for achieving the 70% reduction goal. The Environmental Research Aircraft & Remote Sensor Technology (ERAST) project set a world record for solar powered aircraft by reaching an altitude of 80,200 feet. A solar powered RPV, with the capability of reaching 100,000 feet, will be flight tested in FY 2000.

The Reduced Seat cost element of the AST Program will be completed in FY 1999 with the testing of a semi-span advanced composite wing to verify weight (25 percent reduction) and structural performance goals, and the fabrication of wing cover panels to verify the cost reduction goal (20 percent reduction). The Capacity Program demonstrated its Aircraft Vortex Spacing System (AVOSS) in an initial deployment at Dallas Fort Worth airport. Results showed that significant capacity gains were possible with this system under various weather conditions. Building on previous technology development efforts, the final demonstration of the Terminal Productivity element will occur in FY 2000 and is expected to demonstrate the potential for a 12 to 15% increase in airport throughput. Also in FY 2000, the Advanced Air Transportation element is planned to demonstrate decision support tools that have the potential for a 30% increase in throughput for the extended terminal area.

The Reusable Launch Vehicle (RLV) Program, through the X-33, X-34 and new Future-X Pathfinder Programs, continues to develop, apply and demonstrate new technologies that significantly advance the ability of the launch vehicle industry to initiate commercially viable reusable launch systems. The X-33 and X-34 have completed major hardware fabrication and test milestones and are scheduled to begin flight tests in 1999. The Future-X Program selected the first of its planned series of flight demonstrators. The first Future-X demonstrator complements existing x-vehicles by investigating the orbit-to-Earth and orbital operations regimes of the flight spectrum, and will begin flight tests in 2000.

The Advanced Space Transportation Program (ASTP) focuses on advanced technology across a broad front in order to reduce costs beyond the targets of the immediate RLV program goals. The ASTP includes a base of core technology investments as well as technology investments unique to focused program efforts. In FY 1999, the ion engine aboard Deep Space-1 was activated and continues to operate in a nominal fashion. Industry-led Future Launch Architecture studies are currently underway to support an end-of-the-decade decision on lower cost civil space transportation architectures as called for in the National Space Transportation Policy. Funds are provided in the Future Space Launch budget line for the years beyond FY 2000 to pursue the decision.

The Commercial Technology Program's focus in FY 1998 was continued investment of 10–15 percent of the NASA R&D budget in commercial partnerships with industry. Based on experience to date, these commercial partnerships are expected to increase the return on the government's R&D in-

**General and special funds—Continued**

**SCIENCE, AERONAUTICS AND TECHNOLOGY—Continued**

vestment, allowing NASA to do more with limited funds, and strengthening the international competitiveness of key industry sectors. In FY 1999 and 2000, the program will continue to emphasize increasing commercial partnerships with industry and continue to refine and expand a technology and partnership database.

**Mission Communication Services.**—The primary goal of this operational program is to provide highly reliable, cost-effective space operations services in support of NASA's science and aeronautics programs. In addition, support is provided to interagency, international, and commercial space-faring enterprises on a reimbursable basis. The mission communication services program is composed of ground networks, space network services, and mission control systems, as well as Agency radio spectrum management and data standards coordination. Services are provided to a large number of NASA missions, including planetary and interplanetary missions; human space flight missions; near-earth and earth orbiting missions; and sub-orbital and aeronautical flight tests. On October 1, 1998 a Consolidated Space Operations Contract (CSOC) was competitively awarded to Lockheed-Martin Space Operations Company. This contract is designed to maximize space operations resources by reducing systems overlap and duplication.

**Academic Programs.**—The goal of this program is to promote excellence in America's education system through enhancing and expanding scientific and technological competence. NASA's education programs span the elementary through graduate levels and are directed at both students and faculty. The goal of the Minority University Research Program is to expand opportunities for talented students from underrepresented groups who are pursuing degrees in science and engineering and to strengthen the research capabilities of minority universities and colleges. The range of activities conducted under this program will continue to capture the interest of all students in science and technology, develop talented students at the undergraduate and graduate levels, provide research opportunities for students and faculty members at NASA centers, and strengthen and enhance the research capabilities of the nation's colleges and universities.

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

Identification code 80-0110-0-1-999	1998 actual	1999 est.	2000 est.
<b>Direct obligations:</b>			
22.0 Transportation of things .....	5	5	5
23.1 Rental payments to GSA .....	1	1	1
23.3 Communications, utilities, and miscellaneous charges .....	64	61	60
24.0 Printing and reproduction .....	6	6	6
25.1 Advisory and assistance services .....	390	369	366
25.2 Other services .....	1,164	1,102	1,093
25.3 Purchases of goods and services from Government accounts .....	265	251	249
25.4 Operation and maintenance of facilities .....	134	127	126
25.5 Research and development contracts .....	2,421	2,293	2,275
25.7 Operation and maintenance of equipment .....	111	105	104
26.0 Supplies and materials .....	52	49	49
31.0 Equipment .....	165	156	155
32.0 Land and structures .....	24	23	23
41.0 Grants, subsidies, and contributions .....	994	941	935
99.0 Subtotal, direct obligations .....	5,796	5,489	5,447
99.0 Reimbursable obligations .....	508	599	577
99.9 Total new obligations .....	6,304	6,088	6,024

**MISSION SUPPORT**

For necessary expenses, not otherwise provided for, in carrying out mission support for human space flight programs and science, aeronautical, and technology programs, including research operations and support; space communications activities including operations,

production and services; maintenance; construction of facilities including repair, rehabilitation, and modification of facilities, minor construction of new facilities and additions to existing facilities, facility planning and design, environmental compliance and restoration, and acquisition or condemnation of real property, as authorized by law; program management; personnel and related costs, including uniforms or allowances therefor, as authorized by 5 U.S.C. 5901-5902; travel expenses; purchase, lease, charter, maintenance, and operation of mission and administrative aircraft; not to exceed \$35,000 for official reception and representation expenses; and purchase (not to exceed 33 for replacement only) and hire of passenger motor vehicles, **[\$2,511,100,000] \$2,494,900,000**, to remain available until September 30, **[2000] 2001.** (Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.)

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

Identification code 80-0112-0-1-999	1998 actual	1999 est.	2000 est.
<b>Obligations by program activity:</b>			
<b>Direct program:</b>			
00.01 Safety, reliability and quality assurance .....	36	35	44
00.02 Space communication services .....	204	169	99
00.03 Research and program management .....	2,059	2,105	2,180
00.04 Construction of facilities .....	155	168	177
01.00 Total direct program .....	2,454	2,477	2,500
09.01 Reimbursable program .....	91	131	121
10.00 Total new obligations .....	2,545	2,608	2,621
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance available, start of year .....	160	85	119
22.00 New budget authority (gross) .....	2,471	2,642	2,616
23.90 Total budgetary resources available for obligation .....	2,631	2,727	2,735
23.95 Total new obligations .....	-2,545	-2,608	-2,621
23.98 Unobligated balance expiring .....	-1		
24.40 Unobligated balance available, end of year .....	85	119	114
<b>New budget authority (gross), detail:</b>			
<b>Current:</b>			
40.00 Appropriation .....	2,433	2,511	2,495
41.00 Transferred to other accounts .....	-53		
43.00 Appropriation (total) .....	2,380	2,511	2,495
<b>Permanent:</b>			
<b>Spending authority from offsetting collections:</b>			
68.00 Offsetting collections (cash) .....	131	131	121
68.10 From Federal sources: Change in receivables and unpaid, unfilled orders .....	-40		
68.90 Spending authority from offsetting collections (total) .....	91	131	121
70.00 Total new budget authority (gross) .....	2,471	2,642	2,616
<b>Change in unpaid obligations:</b>			
<b>Unpaid obligations, start of year:</b>			
72.40 Obligated balance, start of year .....	526	487	378
72.95 From Federal sources: Receivables and unpaid, unfilled orders .....	106	66	66
72.99 Total unpaid obligations, start of year .....	632	553	444
73.10 Total new obligations .....	2,545	2,608	2,621
73.20 Total outlays (gross) .....	-2,614	-2,717	-2,541
73.40 Adjustments in expired accounts .....	-10		
<b>Unpaid obligations, end of year:</b>			
74.40 Obligated balance, end of year .....	487	378	458
74.95 From Federal sources: Receivables and unpaid, unfilled orders .....	66	66	66
74.99 Total unpaid obligations, end of year .....	553	444	524
<b>Outlays (gross), detail:</b>			
86.90 Outlays from new current authority .....	1,930	2,006	1,994
86.93 Outlays from current balances .....	588	580	427
86.97 Outlays from new permanent authority .....	55	131	121
86.98 Outlays from permanent balances .....	41		
87.00 Total outlays (gross) .....	2,614	2,717	2,541

Offsets:				
Against gross budget authority and outlays:				
Offsetting collections (cash) from:				
88.40	Non-Federal sources .....	- 23	- 29	- 24
88.45	Offsetting governmental collections .....	- 108	- 102	- 97
88.90	Total, offsetting collections (cash) .....	- 131	- 131	- 121
88.95	From Federal sources: Change in receivables and unpaid, unfilled orders .....	40		
Net budget authority and outlays:				
89.00	Budget authority .....	2,380	2,511	2,495
90.00	Outlays .....	2,483	2,586	2,420

This appropriation provides funding for mission support and includes: safety, mission assurance, engineering and advanced concepts activities supporting agency programs; space communication services for NASA programs; salaries and related expenses in support of research in NASA field installations; design, repair, rehabilitation and modification of institutional facilities and construction of new institutional facilities; and other operations activities supporting conduct of agency programs.

**Performance Objectives**

*Safety, Mission Assurance, Engineering, and Advanced Concepts.*—The goal of this program is to invest in the safety and success of NASA missions by assuring that sound and robust policies, processes, and tools for safety, reliability, quality assurance, and engineering disciplines are in place and applied throughout NASA. The program also examines long-term technology requirements for NASA's strategic objectives.

*Space Communication Services.*—The primary goal is to provide highly reliable, cost-effective space operations services in support of NASA's science and aeronautics programs. In addition, support is provided to interagency, international, and commercial space-faring enterprises on a reimbursable basis. The space communications services program is composed of Space Network and telecommunications programs. Services are provided to human space flight missions and low earth-orbital spacecraft compatible with the Tracking and Data Relay Satellite System (TDRSS); to expendable launch vehicles and research aircraft; and for telecommunications interconnectivity among NASA, contractor and investigator science facilities around the world. Development of a remote ground terminal at Guam which extends network capability, by providing coverage of the zone of exclusion, was completed in FY 1998. Development of the TDRSS Replenishment Spacecraft is ongoing, with the first satellite scheduled for launch late in FY 1999. Management and responsibility for all Wide Area Network data distribution services for all manned, earth orbiting and deep space missions and NASA administrative communications will be outsourced by CSOC late in FY 1999.

*Research and Program Management.*—This activity provides for the salaries, travel support, other personnel expenses of the entire NASA civil service workforce, and includes vital support to the physical plant at the Centers and at NASA Headquarters.

*Construction of Facilities.*—This activity provides for facility construction activities to preserve NASA's core infrastructure; environmental compliance and restoration activities, design of facilities projects, and advanced planning related to future facilities needs. In 1998–2000, activities in support of discrete projects to repair and modernize the basic infrastructure and institutional facilities at NASA centers will continue, as well as activities in support of environmental compliance and restoration requirements.

Object Classification (in millions of dollars)				
Identification code 80–0112–0–1–999	1998 actual	1999 est.	2000 est.	
<b>Direct obligations:</b>				
<b>Personnel compensation:</b>				
11.1	Full-time permanent .....	1,194	1,219	1,254
11.3	Other than full-time permanent .....	30	31	33
11.5	Other personnel compensation .....	23	24	26
11.8	Special personal services payments .....	8	8	8
11.9	Total personnel compensation .....	1,255	1,282	1,321
12.1	Civilian personnel benefits .....	264	271	274
13.0	Benefits for former personnel .....	30	13	11
21.0	Travel and transportation of persons .....	45	45	45
22.0	Transportation of things .....	5	5	5
23.1	Rental payments to GSA .....	15	15	15
23.3	Communications, utilities, and miscellaneous charges .....	59	60	58
24.0	Printing and reproduction .....	4	4	4
25.1	Advisory and assistance services .....	18	19	18
25.2	Other services .....	269	269	266
25.3	Purchases of goods and services from Government accounts .....	27	28	27
25.4	Operation and maintenance of facilities .....	49	49	48
25.5	Research and development contracts .....	140	141	138
25.6	Medical care .....	2	2	2
25.7	Operation and maintenance of equipment .....	95	96	93
26.0	Supplies and materials .....	21	21	21
31.0	Equipment .....	15	15	15
32.0	Land and structures .....	135	136	133
41.0	Grants, subsidies, and contributions .....	6	6	6
99.0	Subtotal, direct obligations .....	2,454	2,477	2,500
99.0	Reimbursable obligations .....	91	131	121
99.9	Total new obligations .....	2,545	2,608	2,621

**Personnel Summary**

Identification code 80–0112–0–1–999	1998 actual	1999 est.	2000 est.	
<b>Direct:</b>				
1001	Total compensable workyears: Full-time equivalent employment .....	18,839	18,460	17,885
<b>Reimbursable:</b>				
2001	Total compensable workyears: Full-time equivalent employment .....	85	85	85

**RESEARCH AND DEVELOPMENT**

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

Identification code 80–0108–0–1–999	1998 actual	1999 est.	2000 est.	
<b>New budget authority (gross), detail:</b>				
<b>Spending authority from offsetting collections:</b>				
68.00	Offsetting collections (cash) .....	5		
68.10	From Federal sources: Change in receivables and unpaid, unfilled orders .....	- 5		
68.90	Spending authority from offsetting collections (total) .....			
<b>Change in unpaid obligations:</b>				
<b>Unpaid obligations, start of year:</b>				
72.40	Obligated balance, start of year .....	104	51	31
72.95	From Federal sources: Receivables and unpaid, unfilled orders .....	34	29	29
72.99	Total unpaid obligations, start of year .....	138	80	60
73.20	Total outlays (gross) .....	- 45	- 20	- 44
73.40	Adjustments in expired accounts .....	- 13		
<b>Unpaid obligations, end of year:</b>				
74.40	Obligated balance, end of year .....	51	31	- 13
74.95	From Federal sources: Receivables and unpaid, unfilled orders .....	29	29	29
74.99	Total unpaid obligations, end of year .....	80	60	16
<b>Outlays (gross), detail:</b>				
86.93	Outlays from current balances .....	45	20	44

**General and special funds—Continued**

**RESEARCH AND DEVELOPMENT—Continued**

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

Identification code 80-0108-0-1-999	1998 actual	1999 est.	2000 est.
<b>Offsets:</b>			
Against gross budget authority and outlays:			
88.45 Offsetting collections (cash) from: Offsetting governmental collections .....	- 5		
88.95 From Federal sources: Change in receivables and unpaid, unfilled orders .....	5		
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			
90.00 Outlays .....	40	20	44

Since FY 1995 NASA's Research and Development activities have been performed in Human Space Flight; Science, Aeronautics and Technology; and Mission Support. This account shows spending from balances prior to the account restructuring.

**SPACE FLIGHT, CONTROL AND DATA COMMUNICATIONS**

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

Identification code 80-0105-0-1-252	1998 actual	1999 est.	2000 est.
<b>Change in unpaid obligations:</b>			
Unpaid obligations, start of year:			
72.40 Obligated balance, start of year .....	56	20	12
72.95 From Federal sources: Receivables and unpaid, unfilled orders .....	2	2	
72.99 Total unpaid obligations, start of year .....	58	22	12
73.20 Total outlays (gross) .....	- 34	- 10	- 12
73.40 Adjustments in expired accounts .....	- 2		
Unpaid obligations, end of year:			
74.40 Obligated balance, end of year .....	20	12	
74.95 From Federal sources: Receivables and unpaid, unfilled orders .....	2		
74.99 Total unpaid obligations, end of year .....	22	12	
<b>Outlays (gross), detail:</b>			
86.93 Outlays from current balances .....	34	10	12
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			
90.00 Outlays .....	34	10	12

Since FY 1995 NASA's Space Flight, Control and Data Communications activities have been performed in Human Space Flight; Science, Aeronautics and Technology; and Mission Support. This account shows spending from balances prior to the account restructuring.

**CONSTRUCTION OF FACILITIES**

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

Identification code 80-0107-0-1-999	1998 actual	1999 est.	2000 est.
<b>Obligations by program activity:</b>			
00.01 Supporting activity .....	4	9	
00.02 Space transportation .....	4	10	
00.03 Mission to Planet Earth .....	1		
00.04 Aeronautical research and technology .....	18	10	
10.00 Total new obligations .....	27	29	
<b>Budgetary resources available for obligation:</b>			
21.40 Unobligated balance available, start of year .....	56	29	
23.95 Total new obligations .....	- 27	- 29	
24.40 Unobligated balance available, end of year .....	29		

**Change in unpaid obligations:**

72.40 Unpaid obligations, start of year: Obligated balance, start of year .....	68	30	29
73.10 Total new obligations .....	27	29	
73.20 Total outlays (gross) .....	- 64	- 14	- 44
73.40 Adjustments in expired accounts .....	- 1	- 16	15
74.40 Unpaid obligations, end of year: Obligated balance, end of year .....	30	29	

**Outlays (gross), detail:**

86.93 Outlays from current balances .....	64	14	44
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**Net budget authority and outlays:**

89.00 Budget authority .....			
90.00 Outlays .....	64	14	44

**Memorandum (non-add) entries:**

92.01 Total investments, start of year: U.S. securities: Par value .....	2		
92.02 Total investments, end of year: U.S. securities: Par value .....			

Since FY 1995 NASA's Construction of Facilities activities have been performed in Human Space Flight; Science, Aeronautics and Technology; and Mission Support. This account shows spending from balances prior to the account restructuring.

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

Identification code 80-0107-0-1-999	1998 actual	1999 est.	2000 est.
25.2 Other services .....	2	1	
25.4 Operation and maintenance of facilities .....	3	3	
32.0 Land and structures .....	22	25	
99.9 Total new obligations .....	27	29	

**RESEARCH AND PROGRAM MANAGEMENT**

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

Identification code 80-0103-0-1-999	1998 actual	1999 est.	2000 est.
<b>Change in unpaid obligations:</b>			
Unpaid obligations, start of year: Obligated balance, start of year .....			
72.40	1	1	
74.40 Unpaid obligations, end of year: Obligated balance, end of year .....	1		
<b>Net budget authority and outlays:</b>			
89.00 Budget authority .....			
90.00 Outlays .....			

Since FY 1995 NASA's Research and Program Management activities have been performed in Mission Support. 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, **[\$20,000,000]** *\$20,800,000.* (Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.)

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

Identification code 80-0109-0-1-252	1998 actual	1999 est.	2000 est.
<b>Obligations by program activity:</b>			
10.00 Total obligations .....	18	20	21
<b>Budgetary resources available for obligation:</b>			
22.00 New budget authority (gross) .....	18	20	21
23.95 Total new obligations .....	- 18	- 20	- 21



<b>New budget authority (gross), detail:</b>			
40.00	Appropriation .....	18	20 21
<b>Change in unpaid obligations:</b>			
72.40	Unpaid obligations, start of year: Obligated balance, start of year .....	2	2 2
73.10	Total new obligations .....	18	20 21
73.20	Total outlays (gross) .....	-18	-20 -21
74.40	Unpaid obligations, end of year: Obligated balance, end of year .....	2	2 2
<b>Outlays (gross), detail:</b>			
86.90	Outlays from new current authority .....	16	18 18
86.93	Outlays from current balances .....	2	2 2
87.00	Total outlays (gross) .....	18	20 21
<b>Net budget authority and outlays:</b>			
89.00	Budget authority .....	18	20 21
90.00	Outlays .....	18	20 21

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

Object Classification (in millions of dollars)

Identification code 80-0109-0-1-252	1998 actual	1999 est.	2000 est.
11.1 Personnel compensation: Full-time permanent .....	13	15	16
12.1 Civilian personnel benefits .....	3	3	3
21.0 Travel and transportation of persons .....	1	2	2
25.2 Other services .....	1		
99.9 Total new obligations .....	18	20	21

Personnel Summary

Identification code 80-0109-0-1-252	1998 actual	1999 est.	2000 est.
1001 Total compensable workyears: Full-time equivalent employment .....	185	210	210

Trust Funds

SCIENCE, SPACE, AND TECHNOLOGY EDUCATION TRUST FUND

Unavailable Collections (in millions of dollars)

Identification code 80-8978-0-7-503	1998 actual	1999 est.	2000 est.
Balance, start of year:			
01.99	Balance, start of year .....		
Receipts:			
02.01	Earnings on investments: Science, Space and Technology Education, Trust Fund .....	1	1 1
Appropriation:			
05.01	Science, space, and technology education trust fund .....	-1	-1 -1
07.99	Total balance, end of year .....		

Program and Financing (in millions of dollars)

Identification code 80-8978-0-7-503	1998 actual	1999 est.	2000 est.
<b>Obligations by program activity:</b>			
10.00	Total obligations (object class 41.0) .....	1	
<b>Budgetary resources available for obligation:</b>			
21.40	Unobligated balance available, start of year .....	18	18 18

22.00	New budget authority (gross) .....	1	1 1
23.90	Total budgetary resources available for obligation .....	19	19 19
23.95	Total new obligations .....	-1	
24.40	Unobligated balance available, end of year .....	18	18 18
<b>New budget authority (gross), detail:</b>			
60.27	Appropriation (trust fund, indefinite) .....	1	1 1
<b>Change in unpaid obligations:</b>			
73.10	Total new obligations .....	1	
73.20	Total outlays (gross) .....	-1	-1 -1
<b>Outlays (gross), detail:</b>			
86.97	Outlays from new permanent 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: U.S. securities: Par value .....	16	17 17
92.02	Total investments, end of year: U.S. securities: Par value .....	17	17 17

ADMINISTRATIVE PROVISIONS

Notwithstanding the limitation on the availability of funds appropriated for "Human space flight", "Science, aeronautics and technology", or "Mission support" by this appropriations Act, when any activity has been initiated by the incurrence of obligations for construction of facilities as authorized by law, such amount available for such activity shall remain available until expended. This provision does not apply to the amounts appropriated in "Mission support" pursuant to the authorization for repair, rehabilitation and modification of facilities, minor construction of new facilities and additions to existing facilities, and facility planning and design.

Notwithstanding the limitation on the availability of funds appropriated for "Human space flight", "Science, aeronautics and technology", or "Mission support" by this appropriations Act, the amounts appropriated for construction of facilities shall remain available until September 30, [2001] 2002.

Notwithstanding the limitation on the availability of funds appropriated for "Mission support" and "Office of Inspector General", amounts made available by this Act for personnel and related costs and travel expenses of the National Aeronautics and Space Administration shall remain available until September 30, [1999] 2000 and may be used to enter into contracts for training, investigations, costs associated with personnel relocation, and for other services, to be provided during the next fiscal year.

[NASA shall develop a revised appropriation structure for submission in the fiscal year 2000 budget request consisting of five appropriations accounts (International Space Station; Launch Vehicles and Payload Operations; Science, Aeronautics and Technology; Mission Support; and Office of Inspector General).]

NASA shall develop a revised appropriation account structure for submission in the fiscal year 2001 budget request consisting of the "Human Space Flight" account; the "Science, Aeronautics, and Technology" account; and the "Office of the Inspector General" account. The accounts shall each include the planned full costs (direct and indirect costs) of NASA's related activities and allow NASA to shift civil service salaries, benefits and support among accounts, as required, for the safe, timely, and successful accomplishment of NASA missions. (Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.)