NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 2000 BUDGET ESTIMATES

NASA'S VISION FOR THE FUTURE

NASA is an investment in America's future. As explorers, pioneers, and innovators, we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth.

NASA's unique mission of exploration, discovery, and innovation has preserved the United States' role as both a leader in world aviation and as the preeminent spacefaring nation. It is NASA's mission to:

- Explore, use and enable the development of space for human enterprise;
- Advance scientific knowledge and understanding of the Earth, the Solar System, and the Universe and use the environment of space for research;
- Research, develop, verify and transfer advanced aeronautics, space and related technologies.

The outcomes of NASA's activities contribute significantly to the achievement of America's goals in four key areas:

- Economic growth and security - NASA conducts aeronautics and space research and develops technology in partnership with industry, academia, and other federal agencies to keep America capable and competitive.
- Preserving the Environment - NASA studies the Earth as a planet and as a system to understand global climate change, enabling the world to address environmental issues.
- Educational Excellence - NASA involves the educational community in our endeavors to inspire America's students, create learning opportunities, and enlighten inquisitive minds.
- Peaceful Exploration and Discovery - NASA explores the Universe to enrich human life by stimulating intellectual curiosity, opening new worlds of opportunity, and uniting nations of the world in this quest.

To fulfill NASA's mission of exploration, discovery and innovation, NASA sets the following overarching goals to take its science and aeronautics program proudly into the 21st century:

NASA will be at the forefront of exploration and science. We will develop and transfer cutting-edge technologies in aeronautics and space. NASA will establish a permanent human presence in space.

As NASA pursues its mission, NASA will enrich the Nation's society and economy. NASA will contribute to a better life for this and future generations.

In the coming decades, it is our goal to undertake bold and noble challenges -- exciting future programs, which stir the imagination and fall within the grasp of the United States and its international partners' technical and financial grasp.

The President's national space policy, released in September 1996, underscores NASA's role as the lead Federal Agency for civil space R&D. It features NASA's strengthening of its focus on cutting edge R&D and deemphasis on operational activities. The policy highlights priorities in human space flight (the International Space Station), science (Earth observation, continuous robotic presence on Mars surface, celestial sample returns and search for other Earth-like planets), and space technology (reusable launch vehicles and smaller, cheaper space missions). It also underscores NASA's leveraging of industry through purchases of launch services, spacecraft, data products, communication services, and new technology; and continued close coordination with the Department of Defense (DoD), the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), Department of Transportation, etc.

STRATEGY FOR ACHIEVING OUR GOALS

The NASA budget request for FY 2000 continues the President's commitment to invest in the future. This budget request recognizes the enormous potential for investments in the civil space and aeronautics program to benefit this country. The President's Space Policy, issued in September 1996, outlined a strong and stable program in space that will ensure America's role as the world's space leader. The Space Policy reaffirmed the United States' commitment to the International Space Station, to the next generation of launch vehicle programs, to an aggressive space science program, and to the continuing commitment to a long-term program of environmental monitoring from space. The President's strategy for investing in science and technology, encompassing goals which emphasize world leadership in science, mathematics and engineering, economic growth, improved environmental quality, and harnessing information technology continues as the framework for development of federal science and technology policy. The President's budget request for NASA for FY 2000 fully supports these goals.

The NASA budget request for FY 2000 is reflected in five appropriations:

International Space Station - providing funding for International Space Station, including development of research facilities;

Launch Vehicles and Payload Operations – providing funding for the operation, maintenance and upgrades to the Space Shuttle fleet, as well as integration and support for Shuttle payloads and Expendable Launch Vehicles (ELVs);

Science, Aeronautics and Technology - providing funding for NASA's research and development activities, including all science activities, global monitoring, aeronautics, technology investments, education programs, mission communication services and direct program support;

Mission Support - providing funding for NASA's civil service workforce, space communication services, safety and quality assurance activities, and facilities construction activities to preserve NASA's core infrastructure;

Inspector General - providing funding for the workforce and support required to perform audits and evaluations of NASA's programs and operations.

Each Enterprise, similar to the strategic business units employed by the private sector, has a unique set of strategic goals, objectives, and concerns, and a unique set of primary external customers. NASA also provides capabilities that are required for each Enterprise to achieve its goals and meet the needs of their customers. These agency-level activities serve multiple Enterprises and the strategies of these functions are driven primarily by the strategic plans of the Enterprises. The fundamental values of excellence, responsibility, teamwork, trust, and honor form the bedrock of all of NASA's activities.

NASA's Strategic Plan transcends its organizational structure. Each of the Strategic Enterprises seeks to respond to a unique customer community. Each of the Enterprises has its own set of technology needs which are closely linked to performing future planned missions while reducing the cost and technical risk. At the same time, there is considerable synergy between the Enterprise activities, which strengthens each Enterprise. The Strategic Enterprises comprise an integrated national effort. Synergism of broad purposes, technology requirements, workforce skills, facilities, and many other dimensions was the basis for amalgamating these activities within NASA in the National Aeronautics and Space Act in 1958, and the benefits remain strong today.

A broad description of the focus of each Strategic Enterprise follows:

Space Science - The activities of the Space Science Enterprise seek answers to fundamental questions, such as understanding the origin and evolution of the universe and our solar system, if there are planets around other stars, whether the Earth is unique, and if life exists elsewhere. The quest for this information, and the answers themselves, maintains scientific leadership, excites and inspires our society, strengthens education and scientific literacy, develops and transfers technologies to promote U.S. competitiveness, fosters international cooperation to enhance programs and share their benefits, and sets the stage for future space ventures.

Earth Science - The activities that comprise this Enterprise are dedicated to understanding the total Earth system and the effects of humans on the global environment. This pioneering program of studying global climate change is developing many of the capabilities that will be needed indefinitely, for long-term environment and climate monitoring and prediction. Governments around the world need information based on the strongest possible scientific understanding. The unique vantage point of space provides information about the Earth's land, atmosphere, ice, oceans, and biota as a global system, which is available in no other way. In concert with the global research community, the Earth Science Enterprise is developing the understanding needed to support the complex environmental policy decisions that lie ahead.

Human Exploration and the Development of Space - The Human Exploration and Development of Space Enterprise seek to bring the frontiers of space fully within the sphere of human activities. HEDS conducts research and development to sustain a permanent human presence in space in low-Earth orbit. HEDS will use the environment of space for research on biological, chemical and physical processes and facilitates the development of space for commercial enterprise. In pursuit of these goals, HEDS delivers knowledge and technologies that help to improve medical care and industrial processes on Earth while strengthening education and scientific literacy.

Aero-Space Technology - - The Aero-Space Technology Enterprise features the Aeronautics and Space Transportation programs. NASA, and its predecessor, the National Advisory Committee for Aeronautics, have worked closely with U.S. industry, universities, and other Federal agencies to give the United States a preeminent position in Aeronautics. The Aeronautics program will pioneer the identification, development, verification, transfer, application and commercialization of high-payoff aeronautics technologies. Activities pursued as part of this Enterprise emphasize customer involvement, encompassing U.S. industry, the Department of Defense, and the Federal Aviation Administration. NASA is playing a leadership role as part of a Government-industry partnership to develop breakthrough technology that will help the aviation community cut the fatal accident rate five-fold within ten years and ten-fold within twenty years. This new initiative, combined with the NASA investment in Air Traffic Management technology will enhance aviation safety and capacity called for by the White House Commission on Aviation Safety and Security chaired by Vice President Gore. The Space Transportation Technology program will develop new technologies aimed at access to space. The targeted technologies will reduce launch costs dramatically over the next decade, as well as increase the safety and reliability of current and future generation launch vehicles. Additionally, new plateaus of performance for in-space propulsion will be established, while reducing cost and weight.

NASA's ability to inspire and expand the horizons of present and future generations rests on the success of these efforts to maintain this nation's leadership in space within the reality of the fiscal constraints facing the federal budget. In order to ensure the stability to manage and execute programs within budget and schedule, NASA is seeking multi-year appropriations for the International Space Station.

PLANS AND ACCOMPLISHMENTS

The NASA programs achieved many impressive successes in 1998; for example, the in-orbit assembly of the first two first elements of the International Space Station, the launch of new missions to Mars, additional scientific discoveries by the Hubble Space Telescope, Space Shuttle science research missions, the last of which included the return to orbit of Senator John Glenn, and many others. The funding provided in the FY 1999 appropriation and in the FY 2000 budget request will enable NASA to capitalize on these successes, whether it be producing outstanding science and technology, assembling and operating the International Space Station, or development of the next-generation Reusable Launch Vehicle. All of these are being done with an overriding emphasis on safety.

The emphasis on cheaper, more capable science missions is continued in the FY 2000 budget request. These programs experiment with new innovative management and procurement practices, promote smaller affordable missions and enforce strict adherence to performance criteria and cost caps.

NASA has been at the forefront of the Administration's efforts to reshape the federal government, to make it smaller, cut costs, and be more responsive to the ultimate customer, the taxpayer. NASA's civil service workforce was reduced an additional 440 full time equivalents (FTEs) over the FY 1998 baseline of 19,364. Total civil service employment for NASA at the end of FY 1998 was 18,924 FTEs. This progress, combined with the FY 1997 reduction of 618 FTEs, has reduced the NASA workforce by over 1,000 FTEs in the last two years, with an additional reduction of approximately 350 FTEs planned by the end of FY 1999.

NASA continues to be a leader in responding to the challenge of reducing the federal deficit and the goals of the National Performance Review. Over the past several years, NASA has undergone a thorough scrutiny of its mission, organization and activities. A strengthened program management system has been implemented and the Program Management Council regularly reviews the technical, schedule and financial status of NASA's major activities. A disciplined process has been established for the early identification of problems, and guidelines for addressing a solution. This process has resulted in senior management attention focused on program performance. The Strategic Management process put into place provides a continuous process for NASA to make critical decisions about its long-term goals, near-term activities, and institutional capabilities that are in alignment with customer requirements. A fundamental goal of NASA's Strategic Management process is to ensure that the Agency provides its customers with excellent products and services in the most cost-effective and timely manner.

INTERNATIONAL SPACE STATION

This appropriation encompasses the development and operation of the International Space Station (ISS), including the scientific research facilities. The ISS is the culmination of the redesign work begun in FY 1993 to reduce program costs while still providing significant research capabilities. Space Station partners include NASA, the Russian Space Agency (RSA), European Space Agency (ESA), the Canadian Space Agency (CSA), and the National Space Development Agency of Japan (NASDA). The partnerships significantly enhance the capabilities of the International Space Station, and ensure compatible interfacing elements. A single contractor, Boeing North American, which has total development and integration responsibilities, leads the program. The NASA program office at the Johnson Space Center has primary management responsibility for the program, including responsibility for bringing the systems and elements into integrated launch packages.

The Administration continues to be strongly committed to development of the International Space Station, and the preservation of the partnerships between the United States, Russia, Europe, Japan and Canada. Station assembly began in late-1998 and will continue through 2004. The proposed budget provides multi-year funding for development and operation of the Station. Sufficient additional funding is being requested for the International Space Station to maintain the program on schedule and minimize the total cost, while providing contingency activities to mitigate the risk of potential Russian shortfalls.

During the past year, the Space Station program has focused on the continued qualification testing, manufacturing, and assembly and integration of flight hardware. Phase 1 of the program was completed with the ninth Shuttle-Mir flight. Phase 2 began with the successful launch of the Zarya module in November 1998 and the subsequent launch of Unity, the first pressurized node, in December. Unity, including two pressurized mating adapters, was successfully attached to Zarya during assembly flight 2A. In 1998, the laboratory module was completed and readied for delivery to the Kennedy Space Center in the first quarter of FY 1999. Multi-Element Integrated Test (MEIT) activities were initiated and will continue in FY 1999 for flights 3A, 4A, 5A (Lab), and 6A. Activities also continued to support crew training, payload processing, and hardware element processing requirements. The International Space Station partners continued development of flight hardware.

During FY 1999, the major program focus will be the support of logistics launches (2A.1 and 2A.2) in mid- to late-FY 1999, and support for the launch of the Russian Service Module in late FY 1999. MEIT activities for Z1 truss (3A) and the photovotaic arrays on P6 (4A) will be completed by the end of FY 1999, and MEIT for the Lab (5A), Multi-Purpose Logistics Module (MPLM) and the Space Station Remote Manipulator System (SSRMS) will be performed. The airlock, to be flown on 7A in late FY 2000, will complete assembly, checkout and qualification testing for those elements. Preparation for the two utilization flights in FY 2001 (UF-1 and UF-2) is planned, including the start of assembly of EXPRESS racks that will carry experiments in the Lab. Development of orbiter Reaction Control System (RCS) interconnects will continue in FY 1999, and plans are to begin development of a U.S. built propulsion capability to mitigate the risk of potential shortfalls of the Russian system, and to provide a more robust reboost and control function for the ISS.

Seven U.S. assembly and logistics flights are planned for FY 2000, completing Phase 2 of the program with the launch of the airlock on flight 7A in the latter part of the fiscal year. The start of the development of the crew return vehicle is planned in this year, with a target of providing the first vehicle for deployment in FY 2004. Preparations for research utilization, and the buildup

of Phase 3 assembly elements will be a high priority.

Funding for all elements of the Space Station program is included in the appropriation request for the International Space Station. Program elements included in the International Space Station budget are: Vehicle (development of flight hardware), Operations Capability, Research (development and utilization of research facilities), Russian Program Assurance, and the Crew Return Vehicle. Program reserves provide the capability to address technical and contract performance issues that will occur during this peak period of Space Station assembly and integration, test, and deployment.

LAUNCH VEHICLES AND PAYLOAD OPERATIONS

This appropriation provides for the safe and efficient operation of the Space Shuttle, as well as support to Shuttle and ELV payloads. The highest priority of the Shuttle program remains the safe launch, operation and return of the orbiter and crew. Funding is included to continue modifications that will significantly improve the Space Shuttle's overall safety, including modifications to the Main Engine and the Orbiter, as well as continuation of the program of upgrades to increase reliability and maintainability. Transition to a consolidation of Space Shuttle operations contracts into a single prime contractual arrangement was started in October 1996. Transition activities will continue over the next 2 years and be completed in FY 2001. It is expected that this consolidation will achieve the challenge of finding additional cost savings in the outyears. These savings have been incorporated into NASA's budget planning.

In FY 1998, the Space Shuttle launched four flights successfully. Flights included the last Spacelab mission (Neurolab), two re-supply flights to the Russian Space Station Mir, and the United States Microgravity Payload (USMP) with a Spartan payload. The Alpha Magnetic Spectrometer (AMS) investigation was also conducted on the second Mir mission which safely and successfully concluded the formal Phase One Shuttle-Mir program.

Six flights are manifested for FY 1999. The first mission included a Spartan payload, the Hubble Orbital Systems Test (HOST) platform, and a series of experiments by the National Institute on Aging. The crew of astronauts for this last mission included Senator John Glenn. The second mission this year was the extraordinarily successful launch, deployment and mating of Unity to the Zarya module. The Space Shuttle will support the International Space Station with three flights this year, including the initial assembly flight. The Shuttle will also fly the Shuttle Radar Topography Mission (SRTM), a joint DOD/NASA payload to digitally map 80% of the earth's surface. Finally, the Space Shuttle plans to deploy the last of the "Great Observatories" when it launches the Advanced X-Ray Astrophysics Facility (AXAF).

Eight flights are planned to fly during FY 2000, including seven International Space Station assembly flights and the third Hubble Space Telescope servicing mission.

The Payload Utilization and Operations budget supports a variety of goals, which include the processing and flight of Space Shuttle payloads. NASA payloads launched from Expendable Launch Vehicles (ELVs), ensuring the maximum return on the research investment, reducing operations costs, continuing implementation of flight and ground systems improvements, and supporting strategic investments in advanced technology needed to meet future requirements.

SCIENCE, AERONAUTICS AND TECHNOLOGY

Space Science

NASA's Space Science activities seek 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. In 1998, the Space Science program produced many notable scientific accomplishments. Measurement of light from distant exploding stars led two research teams to conclude that the universe will expand forever at a constantly expanding 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, know as a "magnetar", which generates extremely powerful magnetic fields. The Hubble Space Telescope (HST) continued to produce many discoveries, including a possible direct image of an extra-solar planet, and, working with RXTE and the Beppo-Sax mission, detected the largest explosion since the Big Bang. The Keck II 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 mission concepts, including potential lunar colonies as well as human space flight missions beyond the Earth-Moon system. The Solar and Hemispheric 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. In late 1998, and early FY 1999, the New Millennium Deep Space-1 mission, the Submillimeter Wave Astronomy Satellite, and the Mars Climate Orbiter 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 Mars Polar Orbiter, the Stardust mission, the Wide Field Infrared Explorer, the Far Ultraviolet Spectroscopy Explorer, and the Advanced X-Ray Astrophysics Facility.

To capitalize on these successes during the past year, the NASA budget request for FY 2000 provides increased funding for 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 beyond Earth. In addition to planning for the deployment of powerful telescopes to detect Earth-like planets elsewhere in our galaxy, planning continues for a Europa mission to launch in 2003 to directly observe potential subsurface oceans on Europa. The Mars Surveyor Program is augmented to enhance the Mars 2001 lander, as well as to enhance future Mars missions through development of a Mars Telecommunications Network and Mars micro-missions. NASA will also initiate a series of Solar-Terrestrial Probes to track solar phenomena and their impact on the Earth.

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 to receive support. 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; 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 1997are 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 underway to provide flight demonstrations of critical new technologies which will greatly reduce the mass and cost of future science instruments 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 on January 3,1999, and will arrive at Mars in December 1999.

The Space Science program is responsible for Agency-wide core technology development. Space Science is also undertaking and aggressive technology development effort to enable new missions to the outer planets, and to search for Earth-like planets around nearby stars. New technologies are also being pursued to enhance our capability to explore Mars and other solar system bodies robotically, and perhaps to confirm the past or current presence of life elsewhere in the solar system.

Life and Microgravity Sciences and Applications

NASA's Office of Life and Microgravity Sciences and Applications (OLMSA) program advances scientific knowledge to enable the development of space for human enterprise, and to transfer the knowledge and technologies to improve the quality of life for people on Earth. OLMSA implements its projects through ground-based research, research on unmanned free-flying vehicles, Space Shuttle Missions, successfully completed research using the Russian Mir Space Station, and, in the future, on the International Space station (ISS).

In FY 1998 the United States Microgravity Payload (USMP) mission series culminated with the flight of the USMP-4 mission and the Neurolab mission, a Spacelab mission conducted cooperatively with the National Institutes of Health (NIH) dedicated to life sciences research. During the USMP-4 mission researchers used remote commands (telescience) to conduct experiments in fundamental physics and materials science using experimental apparatus in the payload bay and combustion science research

using a glovebox inside the Space Shuttle. The Neurolab mission focused on the most complex and least understood function of the human body – the physiology of the nervous system. During the Neurolab mission a series of integrated biological/medical experiments were performed. These experiments explored how the brain and nervous system interprets, responds, and adapts when challenged by a novel environment. NASA together Science Foundation will apply the information derived from these experiments to the health and safety of astronauts and to medical conditions here on Earth. FY 1998 saw the completion of NASA's highly successful missions to the Russian Mir Space Station. Research on FY 1998 Missions to Mir included disciplines such as biotechnology, biomedicine, and fundamental biology as well as experiments in combustion and materials sciences. Mir served as a testbed for research procedures for the ISS. In FY 1999, the program has flown one science mission (STS-95) on a Spacelab carrier with ISS precursor science experiments and is preparing for research on STS-107 scheduled for launch in late CY 2000. STS 95 included commercially sponsored research as well as research on the effects of aging conducted with the National Institute on Aging. These pathfinder missions provide a transition between Russian Mir Space Station and Spacelab and the onset of significant research capability on-board the ISS. FY 1999 has also seen the beginning of ISS assembly. In FY 2000, a new era in research will begin with the launch of the U.S. laboratory module for the ISS. The U.S. Laboratory module will allow initial Life and Microgravity hardware and experiments to be established aboard the ISS. As assembly of the ISS continues to advance, ISS Crew Health Care System components will be utilized to provide on-orbit medical, environmental and countermeasure capabilities for all ISS crew members. At the end of CY 2000, the program will fly STS-107, which is a dedicated Space Shuttle research mission that will extend previous research results and prepare for research operations on the ISS.

Earth Science

The programs in NASA's Earth Science Enterprise (ESE) improve our understanding of the total Earth system and the effects of natural and human-induced changes on the global environment. Earth Science is pioneering the new interdisciplinary field of research called Earth system science, born of the recognition that the Earth's land surface, oceans, atmosphere, ice sheets and *biota* are both dynamic and highly interactive. It is an area of research with immense benefits to the nation, yielding new knowledge and tools for weather forecasting, agriculture, water resource management, urban and land use planning, and other areas of economic and environmental importance. In concert with other agencies and the global research community, Earth Science is providing the scientific foundation needed for the complex policy choices that lie ahead on the road to sustainable development. Earth Science has established three broad goals: 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 Earth Science program science and technology in the public and private sectors.

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.

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.

Planned 1999 Earth Science launches include the EOS AM-1, Landsat 7, Active Cavity Radiometer Irradiance Monitor Satellite (ACRIMSat) and the Hyperspectral EO-1 mission. In 2000, the Earth Science Systematic data set will be enhanced by launches of EOS PM, SeaWinds on ADEOS II, and the French Jason-1 Ocean Altimetry mission in 2000. In early 2001, the Triana mission is an Earth observation spacecraft to be located at the Sun-Earth L1 point providing a near-term real time, continuous high definition color view of the full sun-lit disc of the Earth. A selection was made in November 1999 for the Scripps Institution of Oceanography to build and conduct the Triana mission scheduled to launch.

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

Aero-Space Technology

The Aeronautics program provides a broad foundation of advanced technology to strengthen the United States' leadership in aviation, an industry that plays a vital role in the economic strength, transportation infrastructure and national defense of the United States. The NASA Aeronautics program provides the nation with leadership in high payoff critical technologies which are transferred to industry, the Department of Defense, and the Federal Aviation Administration for application to safe, superior and environmentally compatible U.S. civil and military aircraft, and for a safe and efficient National Aviation System. NASA's unique research capabilities contribute to the strengthening of America's aviation industry in many ways, and the FY 1999 program

continues important investments required to pursue the high leverage technologies required to support both subsonic and supersonic aircraft safety and performance as well as the economic viability of subsonic aircraft.

Research activities conducted within the Research and Technology Base provide the vital foundation of expertise and facilities that meet a wide range of aeronautical technology challenges for the nation. The program provides a high technology, diverse-discipline environment that enables the development of new, even revolutionary, aerospace concepts and methodologies for applications in industry. Work within the R&T Base lays the foundation for future new focused technology programs to address specific, high value national needs and opportunities the long-term goals of the Aero-Space Technology Enterprise. This work constitutes a national resource of expertise and facilities that responds quickly to critical issues in safety, security, and the environment. These same technological resources contribute to the overall U.S. defense and non-defense product design and development capabilities.

NASA has initiated an Aviation Safety Program to develop and demonstrate the technologies and strategies necessary to reduce the aviation accident rate by a factor of five by 2007 and by a factor of ten by 2107. Research and technology developments will build upon the efforts of the current Research and Technology Base Programs to address accidents involving hazardous weather and controlled flight into terrain, human error caused accident and incidents, and mechanical or software malfunctions. The Program will also develop and integrate information technologies needed to build a safer aviation system as well as providing information to assess situations and trends that might indicate unsafe conditions before they lead to accidents.

The Aviation Systems Capacity (ASC) Program was established as a separate program in FY 2000 to provide the leadership of the research and development activities necessary to address the growing problems of serious delay and inflexibility of the National Airspace System. This program supports the Office of Aero-Space Technology (OAT) enabling technology goal: "While maintaining safety, triple the aviation system throughput, in all weather conditions, within 10 years". The ASC Program will continue to develop, validate and transfer advanced concepts, technologies, and operational concepts and their associated decision support tools, procedures, and hardware systems to maximize the capacity, efficiency, and flexibility of safe operations in the National Airspace System. Additionally, the introduction of new vehicle systems and classes will take full advantage of the improved modernized ATM system.

NASA is an active participant in the High Performance Computing and Communications (HPCC) program, and has pioneered the application of design and simulation software on parallel machines and developed the most widely accepted performance evaluation/tuning software for applications on parallel machines. In FY 2000, NASA will continue to support the Administration's Next Generation Internet (NGI) initiative, to increase the quality, security and certainty of Internet transmissions and to increase network capacity 1,000 times the capacity of the baseline. In FY 2000, NASA will also support the Administration's Information Technology initiative, focusing on research and technologies vital in five mission-critical areas: autonomous spacecraft and rovers; science data understanding; aviation operations; intelligent synthesis environment; and human exploration of space.

The Space Transportation Technology program leads NASA's efforts to develop advanced space transportation technologies critical to the economic, scientific, and technological competitiveness of the U.S. The program is developing new technologies aimed at reducing the cost of access to space and in-space transportation. The technologies targeted will reduce launch costs dramatically

over the next decade, and increase the safety and reliability of current and future generation launch systems. In 1998, the Reusable Launch Vehicle (RLV) program continued to pursue technology development, design and business planning activities in support of next-generation reusable systems, on the X-33 and X-34 flight demonstrators. The X-34 and X-33 are continuing fabrication and assembly of flight hardware. Funding for the RLV program in 1999 and 2000 is included to continue X-34 and X-33 technology development, hardware fabrication and test, in preparation for the flight of the technology demonstrators, which are scheduled to fly in 1999 and 2000 respectively.

The Future-X Pathfinder program completed its first competitive procurement cycle in December 1998. Boeing Corporation was selected to develop a modular orbital flight testbed, and 7 flight experiments were also chosen from 6 different bidders. These Future-X vehicles and flight experiments will demonstrate technologies to improve performance and reduce development, production and operating costs of future Earth-to-orbit and in-space transportation systems. Technologies tested through Future-X will help industry and NASA develop and build future generations of space launch vehicles, which are more advanced and cheaper than previous vehicles.

The Advanced Space Transportation Program (ASTP) is developing key technologies to dramatically reduce space transportation costs across the mission spectrum. ASTP will focus on technological advances with the potential of reducing launch costs beyond RLV goals, as well as on developing technology required to support NASA strategic needs that are not currently addressed by RLV. Future Space Launch Studies are underway to provide input to NASA and the Administration for a decision on whether to pursue an operational launch system to reduce NASA's launch costs.

In order to ensure national economic strength enhancements derived from NASA technology, NASA will continue to pursue a commercial technology mission concurrent to its aerospace mission. The commercial technology mission requires that each NASA program be carried out in a way that proactively involves the private sector from the onset, through a new way of doing business, to ensure that the technology developed will have maximum commercial potential. This mission requires NASA to impart, to the maximum extent possible, the benefits of its technological assets to the national economy and to use, to the maximum extent possible, and the strengths of the U.S. industrial base. In accomplishing this mission, NASA supports the development and transfer of technology, which leads to new commercial products and services.

The Commercial Technology Program achieves this new mission through one of NASA's crosscutting functions -- to provide aerospace products and capabilities to NASA customers. The Commercial Technology Program transfers NASA technology and technical expertise to commercial customers more effectively and efficiently while extending the technology, research and science benefits broadly to the public and commercial sectors. Some of the objectives are to proactively transfer technology through commercialization partnerships, and to integrate innovative approaches to strengthen U.S. competitiveness. Funding for the Commercial Technology Program continues to support development of commercial partnerships with industry. In FY 1999 and FY 2000, emphasis will be on increasing commercial partnerships with industry and continued refinement of a technology and partnership database.

Academic Programs

Science and mathematics achievement is an integral element of the National Education Goals, and NASA's efforts in the education arena strongly support making U.S. students first in the world in science and mathematics achievement by the year 2000. NASA's programs at the pre-college, college and graduate levels use NASA's unique mission and results to capture and channel student interest in science, mathematics and technology, as well as enhance teacher and faculty knowledge and skills related to these subjects. At the undergraduate and graduate level, programs are geared to providing opportunities for students and faculty to participate in NASA-sponsored research activities at NASA field centers.

NASA has made a commitment to playing a leadership role in strengthening the capabilities of minority universities and to increasing opportunities for students at Historically Black Colleges and Universities and Other Minority Universities, primarily Hispanic-serving institutions and Tribal Colleges, to participate in and benefit from NASA's research and education programs. The FY 2000 budget request for the Minority University Research program continues this commitment through funding for initiatives that are under way.

Mission Communication Services

Included within the Science, Aeronautics and Technology appropriation is the support which is most directly related to NASA's science and aeronautics programs, including ground network support, mission planning for robotics spacecraft programs, suborbital mission support, support to aeronautics test programs, and technology development activities to improve the state of space communications technology. Efforts are ongoing to consolidate and streamline major support contract services in order to optimize space operations. On October 1, 1998, the Consolidated Space Operations Contract (CSOC) was competitively awarded to Lockheed-Martin Space Operations Company. This contract became operational on January 1, 1999, and is designed to maximize space operations resources by reducing systems overlap and duplication, and is expected to produce efficiencies and economies over the life of the contract which benefits all NASA programs.

MISSION SUPPORT

Safety, Mission Assurance, Engineering, and Advanced Concepts

NASA is committed to safety and mission success in all of its programs. The requested funding will continue forward-looking safety, mission success, and technology efforts by the Office of Safety and Mission Assurance (OSMA), the Office of the Chief Engineer (OCE), and the Office of the Chief Technologist (OCT). OSMA will develop and implement improved, tailored safety and mission assurance (SMA) policies, practices, and tools, including risk management, into all NASA programs. The OCE will provide a focus for NASA's engineering discipline, oversee applications, and improve NASA's engineering practices and capabilities. The OCT will evaluate advanced aerospace concepts for feasibility, benefits, and long-term technology requirements.

Space Communications Services

Funding for the operation, support and replenishment of NASA's Space Network is included in NASA's Mission Support

appropriation. This program supports the operation of the Tracking and Data Relay Satellite (TDRS) System, the ground terminals at White Sands, New Mexico, and the NASA Control Center at the Goddard Space Flight Center. Funds for services provided to non-science users of the TDRSS are included under this program. The NASA Integrated Services Network are also funded by this appropriation. On October 1, 1998, the CSOC was competitively awarded to Lockheed-Martin Space Operations Company. This contract became operational on January 1, 1999, and is designed to maximize space operations resources by reducing systems overlap and duplication, and is expected to produce efficiencies and economies over the life of the contract which benefits all NASA programs. Procurement of the TDRSS spacecraft and associated launch vehicles currently remain outside the scope of the CSOC contract.

Research and Program Management

The NASA workforce is the foundation underpinning the successful achievement of NASA's goals. Funding for the salaries, travel support and other personnel expenses for the entire NASA workforce is included. Funding for activities that support the NASA workforce and physical plant is also included in Research and Program Management.

NASA's civil service workforce in FY 2000 continues the downsizing process initiated several years ago. Civil service expertise is essential to the timely, cost-effective and crucial research and development that NASA programs feature. NASA's budget request for FY 2000 continues the management policy of using buyouts (at selected Centers) to achieve reductions in planned levels of civil service staffing and support. Current planning supports a civil service workforce of less than 18,000 by the end of FY 2000. Training dollars are requested at levels sufficient to keep the workforce technically prepared to meet the challenges of NASA's diverse and highly technical programs.

Construction of Facilities

Funding is included for discrete projects to repair and modernize the basic infrastructure and institutional facilities, the minor repair, rehabilitation and modification of existing facilities, minor new construction projects, environmental compliance and restoration activities, the design of facilities projects, and the advanced planning related to future facilities needs.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
FISCAL YEAR 2000 ESTIMATES
(IN MILLIONS OF REAL YEAR DOLLARS)

	FY98 OPPLAN 9/29/98	FY99 OPPLAN 12/22/98	FY00 PRES BUDGET
HUMAN SPACE FLIGHT	**5559.5**	**5480.0**	**--**
SPACE STATION	2331.3	2304.7	--
RUSSIAN PROGRAM ASSURANCE	110.0	[53.0]	--
SPACE SHUTTLE	2912.8	2998.3	--
PAYLOAD AND UTILIZATION OPERATIONS	205.4	177.0	--
INTERNATIONAL SPACE STATION			**2482.7**
LAUNCH VEHICLES AND PAYLOAD OPERATIONS			**3155.3**
SPACE SHUTTLE			2986.2
PAYLOAD AND UTILIZATION OPERATIONS			169.1
SCIENCE, AERONAUTICS AND TECHNOLOGY	**5690.0**	**5653.9**	**5424.7**
SPACE SCIENCE	2043.8	2119.2	2196.6
LIFE AND MICROGRAVITY SCIENCES AND APPLICATIONS	214.2	263.5	256.2
EARTH SCIENCE	1417.3	1413.8	1459.1
AERO-SPACE TECHNOLOGY	1483.9	1338.9	1006.5
MISSION COMMUNICATION SERVICES	400.8	380.0	406.3
ACADEMIC PROGRAMS	130.0	138.5	100.0
MISSION SUPPORT	**2380.0**	**2511.1**	**2494.9**
SAFETY, MISSION ASSURANCE, ENGINEERING, AND ADVANCED CONCEPTS	37.8	35.6	43.0
SPACE COMMUNICATION SERVICES	194.2	185.8	89.7
RESEARCH AND PROGRAM MANAGEMENT	2025.6	2121.2	2181.2
CONSTRUCTION OF FACILITIES	122.4	168.5	181.0
INSPECTOR GENERAL	**18.2**	**20.0**	**20.8**
TOTAL BUDGET AUTHORITY	**13,647.7**	**13,665.0**	**13,578.4**
TOTAL OUTLAYS	**14,206.2**	**14,043.0**	**13,356.8**

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 2000 ESTIMATES
SUMMARY RECONCILIATION OF APPROPRIATIONS TO BUDGET PLANS
(IN MILLIONS OF REAL YEAR DOLLARS)

	TOTAL	Human Space Flight	Science, Aero & Technology	Mission Support	Inspector General
FISCAL YEAR 1998					
VA-HUD INDEPENDENT AGENCIES APPROPRIATIONS ACT, FY 1998 (P.L. 105-65)	**13,648.0**	**5506.5**	**5690.0**	**2433.2**	**18.3**
TRANSFER FROM STATE DEPARTMENT (P.L. 105-119)	**0.2**			0.2	
1998 SUPPLEMENTAL APPROPRIATIONS AND RESCISSIONS ACT (P.L. 105-174) APPROPRIATIONS TRANSFER AUTHORITY	**0.0**	53.0		-53.0	
LAPSE OF FY 1998 UNOBLIGATED FUNDS	**-0.5**			-0.4	-0.1
TOTAL FY 1998 BUDGET PLAN	**13,647.7**	**5,559.5**	**5,690.0**	**2,380.0**	**18.2**
FISCAL YEAR 1999 REQUEST	**13,465.0**	**5,511.0**	**5,457.4**	**2,476.6**	**20.0**
VA-HUD INDEPENDENT AGENCIES APPROPRIATIONS ACT, FY 1999 (P.L. 105-276) AS PASSED BY CONGRESS, DIRECTION INCLUDED IN CONFERENCE REPORT H.R. 105-769	**200.0**	-31.0	196.5	34.5	
TOTAL FY 1999 BUDGET PLAN	**13,665.0**	**5,480.0**	**5,653.9**	**2,511.1**	**20.0**

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 2000 ESTIMATES

DISTRIBUTION OF PROGRAM AMOUNT BY INSTALLATION
(Thousands of Dollars)

	International Space Station			Launch Vehicles and Payload Operations			Science, Aeronautics and Technology		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
Johnson Space Center	2,135,700	1,876,000	2,011,700	1,720,406	1,772,600	1,783,500	94,820	119,177	113,772
Kennedy Space Center	94,100	108,300	114,100	209,358	230,300	249,900	245,646	319,224	265,942
Marshall Space Flight Center	150,200	222,000	215,000	1,113,568	1,105,300	1,067,100	686,553	612,331	484,851
Stennis Space Center	0	0	0	47,216	33,300	35,600	60,890	79,146	41,469
Ames Research Center	20,900	41,000	61,100	1,152	2,200	1,600	381,594	381,582	368,397
Dryden Flight Research Cent	0	0	0	5,800	4,000	4,000	140,327	121,634	134,598
Langley Research Center	7,000	4,300	2,900	352	200	200	418,067	359,622	270,759
Glenn Research Center	30,600	30,500	49,900	750	0	0	374,334	322,308	254,322
Goddard Space Flight Center	800	0	0	12,469	13,300	8,800	2,048,068	2,019,656	1,973,983
Jet Propulsion Laboratory	600	5,600	11,000	102	100	100	1,077,650	1,130,402	1,348,663
Headquarters	1,400	17,000	17,000	7,027	14,000	4,500	162,051	188,818	167,944
TOTAL NASA	2,441,300	2,304,700	2,482,700	3,118,200	3,175,300	3,155,300	5,690,000	5,653,900	5,424,700

	Mission Support			Total		
	1998	1999	2000	1998	1999	2000
Johnson Space Center	342,525	367,570	363,200	4,293,451	4,135,347	4,272,172
Kennedy Space Center	248,364	296,775	279,480	797,468	954,599	909,422
Marshall Space Flight Center	379,988	391,570	360,115	2,330,309	2,331,201	2,127,066
Stennis Space Center	49,637	57,565	60,935	157,743	170,011	138,004
Ames Research Center	179,053	188,735	193,999	582,699	613,517	625,096
Dryden Flight Research Cent	61,820	63,375	67,970	207,947	189,009	206,568
Langley Research Center	226,182	232,970	238,323	651,601	597,092	512,182
Glenn Research Center	261,368	215,480	220,523	667,052	568,288	524,745
Goddard Space Flight Center	411,012	433,610	405,130	2,472,349	2,466,566	2,387,913
Jet Propulsion Laboratory	23,478	22,080	21,200	1,101,830	1,158,182	1,380,963
Headquarters	192,877	238,130	278,025	363,355	457,948	467,469
Undistributed:						
Construction of Facilities:						
Various locations	3,721	3,240	6,000	3,721	3,240	6,000
Inspector General				18,152	20,000	20,800
TOTAL NASA	2,380,025	2,511,100	2,494,900	13,647,677	13,665,000	13,578,400

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

ADMINISTRATIVE PROVISIONS

Notwithstanding the limitation on the availability of funds appropriated for "International space station," "Launch vehicles and payload operations," "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 "International space station," "Launch vehicles and payload operations," "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, cost associated with personnel relocation, and for other services, to be provided during the next fiscal year.

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 within and/or 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.)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

APPROPRIATION LANGUAGE AS PROPOSED BY THE ADMINISTRATION

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, [$5,511,000,000] $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 [2000, $2,134,000,000]; for fiscal year 2001, [$1,933,000,000] $2,328,000,000; for fiscal year 2002, [$1,766,000,000] $2,091,000,000; for fiscal year 2003, [$1,546,000,000] $1,721,000,000; and for fiscal year 2004, [$350,000,000] 1,573,000,000. *(Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.)*

APPROPRIATION LANGUAGE AS PROPOSED BY 105-276

INTERNATIONAL SPACE STATION

For necessary expenses, not otherwise provided for, in the conduct and support of the International Space Station 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, $2,482,700 to remain available until September 30, 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, $1,721,100,000; and for fiscal year 2004, 1,573,000,000. *(Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.)]*

LAUNCH VEHICLES AND PAYLOAD OPERATIONS

For necessary expenses, not otherwise provided for, in the conduct and support of launch vehicles and payload operations 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, $3,155,300, to remain available until September 30, 2001. *(Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1999.)*

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

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 Acts, 1999.)*

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.)*

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.)*