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Statement of

Michael D. Griffin
Administrator
National Aeronautics and Space Administration
before the
Committee on Science
House of Representatives

Mr. Chairman and Members of the Committee, thank you for this opportunity to appear today to discuss NASA's plans as represented in the President's FY 2007 budget request for NASA. I will outline the highlights of our budget request and discuss the strategic direction for NASA in implementing the priorities of the President and Congress within the resources provided. The President's FY 2007 budget request for NASA of $16,792 million demonstrates his commitment to the Vision for Space Exploration and our Nation's commitment to our partners on the International Space Station. The FY 2007 budget request is a 3.2% increase above NASA's FY 2006 appropriation, not including the $349.8 million emergency supplemental for NASA's recovery and restoration efforts following Hurricane Katrina. However, let me put NASA's budget into perspective. NASA's budget is roughly 0.7% of the overall Federal budget. This is a prudent investment to extend the frontiers of space exploration, scientific discovery, and aeronautics research. With it, we enhance American leadership, our safety and security, and our global economic competitiveness through the technological innovations stemming from our space and aeronautics research programs. Our Nation can afford this investment in NASA.

On January 14, 2004, President George W. Bush announced the Vision for Space Exploration to advance U.S. scientific, security, and economic interests through a robust space exploration program. NASA is grateful to the Congress for endorsing this Vision last December in the NASA Authorization Act of 2005 (P.L. 109-155) as well as providing guidance and expectations for us in carrying out the Agency's missions of space exploration, scientific discovery, and aeronautics research. To that end, NASA is implementing the priorities of the President and Congress within the resources available. NASA's Strategic Plan and FY 2007 Congressional Budget Justification, provided to the Congress last week, reflect those priorities and describe how NASA is implementing those policies into practice describing our programs, projected resources, and workforce needs.

Implementing the Vision

Later this year, NASA will continue the assembly of the International Space Station (ISS) with the minimum number of Space Shuttle flights necessary to fulfill our commitments to our international partners before the Shuttle's retirement in 2010. With the commitment of resources in the President's budget, my hope is that our international partners will view NASA and the United States as good partners through thick and thin and will team with us in future endeavors of space exploration and scientific discovery. NASA has consulted with our international partners on the configuration of the International Space Station, and is working closely with them to determine the crew size and logistics necessary during and after assembly. The FY 2007 budget request provides the necessary resources to purchase Soyuz

crew transport and rescue for U.S. astronauts as well as minimal Progress vehicle logistics support for the International Space Station from the Russian Space Agency. Likewise, the FY 2007 budget request provides necessary funds for U.S. commercial industry to demonstrate the capability to deliver cargo and/or crew to the International Space Station. If such cost-effective commercial services are successfully demonstrated, NASA will welcome and use them.

The next return to flight test mission, STS-121 commanded by Colonel Steve Lindsey, will help us determine whether we can safely return the Space Shuttle to its primary task of assembling the International Space Station. We continue to develop a fix to eliminate the risk associated with the release of foam debris from the liquid oxygen protuberance air load ramp. We are continuing to work towards the May launch window. The next available window is in July. NASA will launch when we are ready. Pending the results of this test flight, I plan to convene my senior management team for space operations as well as my Chief Safety and Mission Assurance Officer and my Chief Engineer in order to determine whether the Space Shuttle can safely conduct the remaining ISS assembly missions as well as a fifth servicing mission to the Hubble Space Telescope in 2007-08. NASA's FY 2007 budget provides the necessary resources to conduct this mission.

In previous budget requests, NASA reported only placeholder budget estimates for the Space Shuttle for FY 2008-10. The Agency's management focus on return to flight efforts of the Space Shuttle resulted in NASA deferring this analysis until the FY 2007 budget. As I testified to this Committee, NASA's estimates of the budget shortfall required to safely fly out the Space Shuttle with the minimum number of flights necessary to complete ISS assembly and meet our international partner commitments were $3-5 billion. With the FY 2007 budget runout, NASA has added $2.4 billion to the Space Shuttle program and almost $1.5 billion to the International Space Station in FY 2008-10 compared to the FY 2006 budget runout. There is no "new money" for NASA topline budget within the budget projections available given our Nation's other pressing issues, so working with the White House, NASA provided sufficient funds for the Space Shuttle and ISS programs to carry out their missions by redirecting funds from the Science and Exploration budgets.

There are several strategic implications behind this decision. Foremost among them is that our Nation will keep its commitment to our international partners on the International Space Station and maintain goodwill with them. Thus, with limited resources, we need to make some difficult decisions. Leadership means setting priorities of time, energy, and resources, and I have tried to make these decisions with the best available facts and analysis. As I have previously stated to this Committee, the plain fact is that NASA simply cannot afford to do everything that our many constituencies would like the Agency to do. We must set priorities, and we must adjust our spending to match those priorities. NASA needed to take budgeted funds from the Science and Exploration budget projections for FY 2007-11 in order to ensure that enough funds were available to the Space Shuttle and the ISS. Thus, NASA cannot afford the costs of starting some new space science missions, like a mission to Jupiter's moon Europa, or the next-generation space astrophysics missions beyond the James Webb Space Telescope, at this time. It is important to know that NASA is simply delaying these missions, not abandoning them. NASA will still proceed with the Space Interferometry Mission and the Global Precipitation Measurement Mission, as well as conduct a mission to Europa. However, with the limited resources available, I believe that fulfilling our commitments on the International Space Station and bringing the Crew Exploration Vehicle (CEV) online in a timely manner, not later than 2014 and possibly much sooner, is a higher priority than these science missions during this period.

There are several reasons not to delay the CEV further. First and foremost is increased risk to the Vision due to an extended gap in our Nation's ability to launch humans into space. I lived through the gap in human spaceflight between the end of the Apollo program to the first flight of the Shuttle in 1981, and I know firsthand that our Nation's space program suffered greatly from the unintended loss of critical

expertise. Our Nation's space industrial base withered. A longer gap in U.S. human spaceflight capabilities will increase risk and overall costs and lead to even more delays. In addition, the U.S. may risk a perceived, if not a real, loss of leadership in space exploration if we are unable to launch our astronauts into space for an extended period when other nations are establishing or building on their own abilities to do so. An extended gap in U.S. human spaceflight capabilities also increases our risk posture to adequately maintain and utilize the International Space Station. Further, unless a commercial capability arises to transport our astronauts, NASA would continue to be reliant on the Russian Soyuz.

Thus, further delays in the CEV are strategically more damaging to our Nation's space program than delays to these other science missions. I stand by my decision for how to implement the priorities of the President and Congress within the resources provided, and I will work closely with our stakeholders in Congress and the scientific community to make sure they understand my rationale. Some of our stakeholders may not agree with my position, but it is important for everyone to understand the rationale. These are difficult decisions, but we must balance the competing priorities for our Nation's civil space and aeronautics research endeavors with the limited resources available.

If the funds budgeted for Exploration Systems were to be used to provide additional funds for these Science missions, additional Aeronautics Research, or other Congressionally-directed items, I must advise the Congress that such redirection of already-budgeted funds will directly impact NASA's ability to safely, effectively, and efficiently transition the workforce and capabilities from the Space Shuttle to the new Crew Exploration Vehicle (CEV) systems. Funds available to carry out this transition are already lean, with little management reserve or margin for error. This transition from the Shuttle to the CEV is NASA's greatest management challenge over the next several years, and we will need everyone's help within NASA, industry, and our stakeholders to make the transition successful.

Beyond fulfilling our existing commitment, NASA's FY 2007 budget provides the necessary resources to carry out the next steps of the Vision for Space Exploration. The FY 2007 budget provides $3,978 million for Exploration Systems. Last summer, NASA defined the architecture for the exploration systems that will be necessary in carrying forth that Vision, and we notified the Congress of NASA's need to curtail several research and technology activities not directly contributing to the near-term priorities of timely development of the CEV and Crew Launch Vehicle (CLV) based on the results of that exploration architecture study and the limited funds available. I want to thank the Congress for its endorsement of the general architecture plans in the NASA Authorization Act of 2005 (P.L. 109-155) as well as the FY 2006 Appropriations Act for NASA (P.L. 109-108).

The FY 2007 budget request is sufficient to bring the CEV online no later than 2014, and potentially much sooner. The Agency is continuing with its "go-as-you-can-afford-to-pay" strategy toward space exploration. NASA is currently seeking industry proposals for the CEV, and we have considerable incentives for an industry bidder to propose a planned development for the CEV as close to 2010 as possible. However, NASA cannot begin evaluating those proposals until next month, with a currently planned contract award in late summer/early fall 2006. NASA plans to select one industry contractor team for the design and development of the CEV. Concurrently, NASA will refine its independent cost estimates for the CEV and launch systems as well as find cost savings through workforce synergies and contract efficiencies between the Shuttle and CEV launch systems within the budget profile projected in FY 2007. We believe that synergies and contract efficiencies between subsystems, personnel, resources, and infrastructure can be found between the Space Shuttle propulsion elements and the CEV, CLV, and Heavy-Lift Launch Vehicle. I believe that with the FY 2007 budget, NASA and industry have a real opportunity to make the CEV operational much sooner than 2014. I should be able to report a more definitive date for bringing the CEV online by the time we award the CEV contract. Until then, NASA is in source selection for the CEV procurement, and we are limited in our ability to provide information in this competitive environment involving a multibillion dollar procurement.

For the CLV, NASA has funded two industry teams to begin initial development of the vehicle's propulsion systems and develop designs for the CLV upper stage; the Agency also plans to award design, development, test, and evaluation contracts later this year. NASA is planning a systems requirements review for this project in the fall with a preliminary design review in 2008 in order for this new launch vehicle to be ready for when the CEV comes on-line.

While NASA needed to significantly curtail projected funding for biological and physical sciences research on the International Space Station as well as various research and technology projects in order to fund development for the CEV, the U.S. segment of the International Space Station was designated a National Laboratory in the NASA Authorization Act. Thus, NASA is seeking partnerships with other government agencies like the National Science Foundation, Department of Defense, Department of Energy, and the National Institute of Standards and Technology as well as the commercial sector to conduct research onboard the ISS. However, the research utilization of the ISS is limited primarily due to limited cargo and crew transportation. Thus, NASA's investment to spur a commercial cargo and/or crew transportation service is even more compelling.

Scientific Discovery

In 2005, NASA's science missions enjoyed a year of significant achievements. Deep Impact traveled 268 million miles to meet comet Tempel 1, sending its impactor to collide with the comet and providing researchers with the best-ever comet data and images. The Mars twin rovers continue studying the harsh Martian environment, well beyond their expected mission life. Cassini's Huygens probe successfully descended through the murky atmosphere of Saturn's largest moon, Titan, revealing some of its "Earth-like" features. The Mars Reconnaissance Orbiter successfully launched, and beginning in March 2006 will help us better understand the history of water on Mars. The Voyager 1 spacecraft entered the vast, turbulent expanse of the heliosheath, 8.7 billion miles from the sun, where no human-made object has traveled before. The Hubble Space Telescope continues its successful mission of discovery and exploration. Among its many achievements was the discovery that Pluto may have three moons, offering more insights into the nature and evolution of the Pluto system and Kuiper Belt. Through coordination of observations from several ground-based telescopes and NASA's Swift and other satellites, scientists solved the 35-year old mystery of the origin of powerful, split-second gamma-ray bursts. The Tropical Rainfall Measuring Mission provided data to aid our understanding of the changes inside a hurricane, helping scientists re-create storms on computer forecast models, which can assist in the forecasting of future tropical cyclone transformations. And on January 19, 2006, the New Horizons Mission successfully launched, beginning its nine year journey to Pluto. Truly a successful year of science achievements – a trend I expect to continue.

NASA's FY 2007 budget request provides $5,330 million for the Agency's Science portfolio to explore the universe, solar system, and Earth. My decision to curtail the rate of growth for NASA's Science missions is not intended in any way to demonstrate a lack of respect for the work done by the NASA Science team. On the contrary, NASA's science missions remain one of the Nation's crowning achievements, and NASA is a world leader with 54 satellites and payloads currently operating in concert with the science community and our international partners. My decision to slow the rate of growth for NASA's Science missions is simply a matter of how the Agency will use the available resources within the overall NASA portfolio. In fact, the Agency's Science budget has grown much faster than NASA's total budget since FY 1993. In 1992, the Science budget represented 24% of the overall NASA budget while today 32% of the Agency's budget is allocated to Science in FY 2007. NASA's Science budget is moderated to 1.5% growth in the FY 2007 budget request compared with the amount appropriated for NASA in FY 2006 (in accordance with NASA's Initial Operating Plan provided to the Committee) and then 1% per year thereafter through FY 2011.

In the FY 2007 budget, there are some additional budget shifts within the Science portfolio to rebalance the program to reflect our original science priorities and consistent with the FY 2006 Budget Amendment. Within the Science budget, the Solar System Exploration budget provides $1,610 million to fund missions to all solar system bodies, and to maintain the Deep Space Network. Mars exploration is kept at roughly its current level of funding which allows missions every 26 months when the Earth and Mars are in the proper alignment. Mars is and will continue to be the most thoroughly studied planet besides our own Earth. NASA continues a series of openly competed missions for Discovery, New Frontiers, and Scout missions to various planetary bodies in the solar system. Juno, a competitively-selected mission to study Jupiter, is slated to be the next New Frontiers mission, following the New Horizons mission on its way to Pluto after a successful launch in January.

After an extensive review, NASA has extended the mission operating life of several Earth Science missions including TRMM and Terra, Heliophysics missions such as both Voyager spacecraft, and Astrophysics missions including Chandra and WMAP.

Aeronautics Research

NASA's FY 2007 request for the Aeronautics Research Mission Directorate is $724 million. Proper stewardship of this funding requires a coherent strategic vision for aeronautics research, which we are working to develop. While I am concerned that our Nation's aviation industry not lose market share to global competitors, NASA's research must benefit the American public by supporting a broad base of aeronautics research. NASA's aeronautics research cannot and will not directly subsidize work to specific corporate interests. There are fundamental questions in aeronautics research needing to be answered, and NASA will focus its aeronautics research on those issues. NASA will take responsibility for the intellectual stewardship of the core competencies of aeronautics for the Nation in all flight regimes, from subsonic through hypersonic flight. We will also conduct the fundamental research that is needed to meet the substantial challenges of the Next Generation Air Transportation System (NGATS), and we intend to work closely with our agency partners in the Joint Planning and Development Office (JPDO).

Across our aeronautics portfolio, NASA is taking a long-term, strategic approach to our research plans to ensure that we pursue the cutting-edge across the breadth of aeronautics disciplines that will be required to support revolutionary capabilities in both air vehicles and the airspace in which they fly. NASA's commitment to technical excellence requires a commitment to rigor and discipline and will not focus on demonstrations that lack the traceability and scalability that are required for true scientific and engineering advancement. Hence, we are turning away from the four-demo approach proposed last year under the Vehicle Systems Program. Instead, our Fundamental Aeronautics Program will focus on fundamental research that addresses aeronautics challenges in areas such as aerothermodynamics, acoustics, propulsion, materials and structures, computational fluid dynamics, and experimental measurement techniques. The Fundamental Aeronautics Program will generate data, knowledge, and design tools that will be applicable across a broad range of air vehicles in subsonic (both fixed and rotary wing), supersonic, and hypersonic flight.

In the Aviation Safety Program, NASA is taking a proactive approach to developing our strategic research plans, ensuring that the research conducted will lead to capabilities and technologies for improving safety consistent with the revolutionary changes anticipated in air vehicles foreseen in the future. The focus will be vehicle-centric, with areas of research that include vehicle health management, resilient aircraft control, aging and durability challenges, and advanced flight deck technologies.

In the Airspace Systems Program, NASA will conduct the fundamental research required to bring about the revolutionary capabilities articulated in the JPDO's vision for the NGATS. Our research will focus on the development of future concepts, capabilities, and technologies that will enable major measurable increases in air traffic management effectiveness, flexibility, and efficiency.

In addition to the Aeronautics Research Mission Directorate's three research programs, NASA is committed to preserving as national assets those aeronautics test facilities which are deemed mission critical and necessary to meet the needs and requirements of the Agency and the Nation. NASA has established the Aeronautics Test Program (ATP), a component of the Shared Capability Assets Program (SCAP), as a long-term, funded commitment by NASA to retain and invest in test capabilities that are considered important to the Agency and the Nation. ATP's purpose is to ensure the strategic availability of a minimum, critical suite of wind tunnel and ground test facilities which are necessary to meet immediate and future National requirements.

As part of our overall portfolio, NASA program managers and researchers will work closely and constructively with industry, academia, and other Government entities to enhance our Nation's aeronautics capability. In this vein, as a principal member of the interagency JPDO, NASA has established investment priorities that directly address the research and development needs of the NGATS which will enable major increases in the capacity and mobility of the U.S. Air Transportation System. NASA also plans to collaborate closely with industry and academia through the use of competitive research awards and Space Act agreements on prospective research work in line with the critical thrust areas of the Aeronautics program that will enable numerous commercial aviation and scientific applications. Our goal is to focus our total research investments on fundamental aeronautics questions that need to be answered, and that will benefit the broader community of academia, industry, and Government researchers. The results from the research and technology developments achieved by NASA's Aeronautics program will be transitioned for use by both Government and industry. Additionally, and in line with the refocused program's priorities, NASA will leave to others work more appropriately performed or funded by other Agencies or the private sectors.

In accordance with the NASA Authorization Act of 2005, NASA and the Office of Science and Technology Policy have been jointly developing a National Aeronautics Policy which will establish a long term policy and guidance for future aeronautics research and development activities. This policy will establish the appropriate role for Federal investment in U.S. aeronautics research: near- and far-term, high-priority objectives; roles and responsibilities of the multiple agencies involved; and, guidance on related infrastructure and workforce challenges.

Cross-Agency Support Programs

In the FY 2007 budget, NASA proposes a new direct budget category for programs that cut across NASA's portfolio of space exploration, scientific discovery, and aeronautics research. These Cross-Agency Support Programs include: NASA's Education programs funded at $153.3 million; Advanced Business Systems, or more commonly known as the Integrated Enterprise Management program, is called out as a separate program rather than being budgeted from within Corporate and Center General and Administrative accounts and is funded at $108.2 million; NASA's Innovative Partnership Program, including Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR), has been transferred from Exploration Systems so that these partnerships may better address Agency-wide needs and is funded at $197.9 million; and the Shared Capabilities Assets Program is funded at $32.2 million (with additional funding located in the Mission Directorates) and will ensure that NASA's unique facilities (e.g., wind tunnels, rocket engine test stands, high-end computing, thermal vacuum chambers, and other capital assets) are adequately managed with agency-level decision-making to address NASA's and our National needs.

NASA's Education budget request sustains our commitment to excellence in science, technology, engineering and mathematics (STEM) education to ensure that the next generation of Americans can accept the full measure of their roles and responsibilities in shaping the future and meeting the workforce needs to implement the Vision for Space Exploration. NASA will continue to provide innovative programs that use STEM resources (NASA content, people and facilities) to inspire the next generation of explorers and innovators. I have outlined three primary goals for our education investments: (1) strengthening NASA and the Nation's future workforce; (2) attracting and retaining students in the STEM pipeline; and, (3) engaging Americans in NASA's mission. The greatest contribution that NASA makes in educating the next generation of Americans is providing worthy endeavors for which students will be inspired to study difficult subjects like math, science, and engineering because they too share the dream of exploring the cosmos. These students are our future workforce and our education investment portfolio is directly linked to our overall workforce strategy.

NASA Workforce Strategy

The Vision for Space Exploration is a unique endeavor that will last many generations. The NASA management team has been working on the issues and means to build NASA as an institution having ten healthy field Centers known for technical excellence. We continue to define program management and research roles and responsibilities for each Center in order to carry out NASA's missions of space exploration, scientific discovery, and aeronautics research. All of our centers must contribute to NASA's primary missions. We are beginning the process of assigning specific research programs and projects to appropriate NASA Centers. We are not done, but we are taking steps in the right direction.

We have many challenges in the Agency, but none more important than the technical excellence of NASA's workforce. Likewise, we are beginning to address the problems posed by the aging of NASA's facilities and physical assets. The overall objective is to transform the composition of NASA's workforce so that it remains viable for the long-term goals of NASA's missions. We have a lot of work cut out for us in the coming months and year ahead in assigning these program responsibilities and re-building the Agency's technical competence in performing cutting-edge work. NASA has been addressing the challenge of mitigating the number of civil servants in the field that are not currently assigned to NASA programs (the so-called "uncovered capacity") through a number of means recently addressed in a draft report shared with the Committee in compliance with the NASA Authorization Act of 2005. NASA will conduct a reduction in force of our civil servants only as an action of last resort consistent with our statutory constraints. Instead, NASA is focusing its efforts to solve its uncovered capacity workforce problems through a number of other actions, including the assignment of new projects to research Centers that will strengthen their base of in-house work, the Shared Capability Assets Program that should stabilize the skills base necessary for a certain specialized workforce; the movement of certain research and technology development projects from certain centers not suffering from uncovered capacity problems to centers that are; retraining efforts at field centers so that the technical workforce can develop new skills; and the pursuit of reimbursable work for projects and research to support other government agencies and the private sector through Space Act Agreements.

NASA's Financial Management

NASA must accurately account for the taxpayer's money, and we must change the way we have done business in the past in order to achieve this goal. NASA continues to face significant challenges in improving the quality of its financial reporting. In order to address this, NASA developed a Corrective Action Plan based on the expert advice of NASA's Inspector General, the General Accountability Office, and a Senior Advisory Group composed of senior government executives from several federal agencies. Data reconciliation issues to the conversion from ten separate accounting and reporting systems to the

Integrated Enterprise Management Program presented challenges in preparing the Agency's FY 2003 - FY 2005 financial statements. NASA is implementing an aggressive action plan to correct these deficiencies, and NASA senior management is regularly reviewing Agency progress on the corrective actions. Although these corrective actions will require some time to implement, NASA is committed to improving its financial reporting.

NASA's Next Steps

For over three decades, NASA and the Nation's human spaceflight program have been focused on the development and operation of the Space Shuttle and the Space Station. In its final report, the *Columbia* Accident Investigation Board (CAIB) was very forthright in its judgment that these goals are too limited to justify the expense, difficulty, and danger inherent to manned spaceflight, given the limitations of today's technology. The CAIB was equally forthright in calling for a national consensus in the establishment of a program having broader strategic goals. The Vision for Space Exploration is that endeavor. The Congress has endorsed it, the public supports it, and NASA is working to implement it. But to effect these changes, NASA must engage in a major transformation—taking the capabilities we have throughout the Agency and restructuring them to achieve a set of goals for the 21st Century that we have outlined earlier this month in our 2006 NASA Strategic Plan. This is an enormous challenge, but we have begun to transform our entire organization to foster these changes and to enhance a positive, mission-driven culture.

The CAIB was also clear in its assessment that the lack of open communication on technical and programmatic matters was a direct cause of the loss of *Columbia*. We have understood and embraced this assessment, and are absolutely and completely committed to creating an environment of openness and free-flowing communication. However, NASA must still make improvements in its internal communications as well as our external communications with our stakeholders, the scientific community, and the public. We are making a concerted effort to address any problems in this area.

For America to continue to be preeminent among nations, it is necessary for us also to lead in space exploration, scientific discovery, and aeronautics research. It is equally true that great nations need allies and partners. The spirit of innovation and muscle of government and industry are needed to turn the Nation's Vision for Space Exploration into reality. These journeys to the International Space Station, the Moon, Mars, or even Pluto are the most difficult things our Nation does. June Scobee Rodgers, the widow of Dick Scobee, Commander of the Space Shuttle *Challenger* on that ill-fated day twenty years ago, recently noted, "Without risk there's no discovery, there's no new knowledge, there's no bold adventure...the greatest risk is to take no risk." We must continue our journey. America, through NASA, leads the way.

Once again, thank you for the opportunity to testify today. Mr. Chairman and Members of the Committee, I would be pleased to respond to any questions that you may have.

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National Aeronautics and Space Administration
President's FY 2007 Budget Request

(Budget authority, $ in millions)	FULL COST							Chapter Number
By Appropriation Account By Mission Directorate By Theme	FY 2005	Operating Plan 1/18/06 FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Science, Aeronautics, and Exploration	9,050.7	9,721.3	10,524.4	10,594.4	11,136.4	11,747.0	15,526.4	
Science	**5,501.6**	**5,253.7**	**5,330.0**	**5,383.1**	**5,437.1**	**5,491.5**	**5,546.4**	
Solar System Exploration	1,720.5	1,582.3	1,610.2	1,598.6	1,840.4	1,899.6	1,846.7	SAE SMD
The Universe	1,474.9	1,507.9	1,509.2	1,500.9	1,307.9	1,276.1	1,309.7	SAE SMD
Earth-Sun System	2,306.2	2,163.5	2,210.6	2,283.7	2,288.9	2,315.8	2,390.0	SAE SMD
Exploration Systems	**2,209.3**	**3,050.1**	**3,978.3**	**3,981.6**	**4,499.8**	**5,055.9**	**8,775.1**	
Constellation Systems	422.3	1,733.5	3,057.6	3,067.6	3,612.9	4,083.8	7,698.4	SAE ESMD
Exploration Systems Research & Technology	898.9	692.5	646.1	632.2	605.1	679.2	764.6	SAE ESMD
Human Systems Research & Technology	888.1	624.1	274.6	281.8	281.8	292.8	312.1	SAE ESMD
Aeronautics Research	**962.0**	**884.1**	**724.4**	**731.8**	**732.4**	**722.8**	**722.7**	
Aeronautics Technology	962.0	884.1	724.4	731.8	732.4	722.8	722.7	SAE ARMD
Cross-Agency Support Programs	**377.8**	**533.5**	**491.7**	**497.9**	**467.1**	**476.8**	**482.2**	
Education Programs	178.9	162.4	153.3	152.4	153.1	154.0	153.3	SAE CASP
Advance Business Systems (IEMP)	0.0	156.3	108.2	106.9	73.8	78.5	80.6	SAE CASP
Innovative Partnerships	198.9	214.8	197.9	205.5	206.2	209.7	212.9	SAE CASP
Shared Capabilities	0.0	0.0	32.2	33.1	33.9	34.7	35.5	SAE CASP
Exploration Capabilities	7,114.4	6,869.7	6,234.4	6,680.4	6,442.3	6,242.9	2,896.7	
Space Operations	**7,114.4**	**6,869.7**	**6,234.4**	**6,680.4**	**6,442.3**	**6,242.9**	**2,896.7**	
International Space Station	1,591.3	1,753.4	1,811.3	2,200.3	2,255.6	2,197.1	2,360.8	EC SOMD
Space Shuttle*	5,049.2	4,777.5	4,056.7	4,087.3	3,794.8	3,651.1	146.7	EC SOMD
Space and Flight Support	473.9	338.8	366.5	392.8	392.0	394.7	389.2	EC SOMD
Inspector General	31.3	32.0	33.5	34.6	35.5	36.4	37.3	IG
TOTAL	16,196.4	16,623.0	16,792.3	17,309.4	17,614.2	18,026.3	18,460.4	
Year-to-Year Change**			3.2%	3.1%	1.8%	2.3%	2.4%	

* Includes emergency supplemental of $349.8 million in FY 2006.
** Not including emergency supplemental of $349.8 in FY 2006.
Totals may not add due to rounding.