

FY 2008 Appropriations for the National Aeronautics & Space Administration (NASA)

http://www.nasa.gov/pdf/168652main_NASA_FY08_Budget_Request.pdf

(numbers are in millions)

NASA	FY 2007 Joint Res.	President's FY 2008 Request	% change FY07 vs. FY08 Request	House	Senate	Omnibus
Science, Aeronautics and Exploration	10,075.0	10,483.1	4.1%		10,633.0	10,543.1
Science	5,371.0	5,516.10	1.0%	5,696.0	5,655.0	5,577.0
Earth Science	1,443.0	1,497.3			1,635.3	1,508.0
Earth Science Research		428.5			524.1	
Applied Sciences		40.3			55.3	
Earth Science Multi- Mission Operations		204.4			204.4	
Earth Systematic Missions		608.0			637.9	
Earth System Science Pathfinder		135.7			133.1	
Education and Outreach		23.5			23.5	
Earth Science Technology		57.0			57.0	
Heliophysics	1,013.0	1,057.2			1,088.5	1,045.0
Heliophysics Research		206.1			206.1	
Deep Space Mission Systems		263.0			263.0	
Living with a Star		253.0			273.0	
Solar Terrestrial Probes		126.8			142.3	
Heliophysics Explorer Program		76.1			76.1	
Near Earth Networks		66.0			66.0	
New Millennium		66.2			62.0	
Planetary Science	1,391.0	1,395.8			1,366.3	1,372.0

NASA	FY 2007 Joint Res.	President's FY 2008 Request	% change FY07 vs. FY08 Request	House	Senate	Omnibus
Astrophysics	1,540.0	1,565.8			1,564.9	1,561.0
Exploration Systems	3,401.0	3,923.8	15.3%	3,923.8	3,972.4	3,842.0
Aeronautics Research	695.0	554.0	-25.4%	700.0	554.0	625.3
Aviation Safety		74.1				
Education Programs	139.7	153.7	10.0%	217.3	150.0	180.0
Exploration Capabilities	6,140.0	6,791.7	10.6%		6,792.0	6,659.0
TOTAL, NASA	16,267.0	17,309.4	6.4%	17,599.0	18,459.0	17,309.4

Detail on Omnibus Bill, signed by President 12/26/07 (12/31/07):

President Bush signed the 2008 omnibus appropriations bill into law on December 26. The bill contains funding for all federal agencies and programs except the Department of Defense. At the end of a protracted period of negotiation, the President largely prevailed in holding overall spending to his top line request of \$933 billion for FY 2008 with the help of a core group of Republicans. The Chairman of the House Appropriations Committee, Congressman David Obey (D-WI), indicated that Congress had to restore funding and "fill some of the unacceptable holes" in the President's budget request within an overall budget that essentially freezes discretionary spending. To do this, funding for many of the programs and initiatives supported by the research and university community were reduced significantly below the levels recommended earlier this year.

The omnibus bill provides NASA with the President's budget request of \$17.309 billion for FY 2008, which is more than \$1 billion above the enacted FY 2007 level, but \$310 million and \$150 million below the House and Senate's respective proposed levels.

The additional \$1 billion in emergency funding for return-to-flight costs included within the Senate bill by Senators Mikulski (D-MD), Hutchison (R-TX), and Shelby (R-AL) was not included in the final omnibus bill.

NASA's Science, Aeronautics, and Exploration account receives \$10.543 billion, which is \$468 million (4.6 percent) above the FY 2007 level.

Within this total, \$5.535 billion is for the Science Mission Directorate, which is \$284 million (5.4 percent) above the FY 2007 level and incorporates a \$42 million reduction. While this level is still well below the original amounts proposed by the House and Senate, it does include funding for several priority areas of science, including:

- \$40 million to initiate missions described in the National Research Council Earth Science Decadal report released earlier this year;

- \$24 million above the President's request to restore funding for Research and Analysis (R&A) awards;
- \$15 million above the President's request for the Earth Science Applications Program and new competitive opportunities;
- \$4.3 million for the Beyond Einstein Program and future construction of the Joint Dark Energy Mission; and
- \$1.7 billion in funding for large scientific missions such as the Hubble Space Telescope, Mars Exploration, and the James Webb Space Telescope, among others.

Within the amount provided for SAE, the bill also includes \$625.3 million for aeronautics research, which is \$265 million (30 percent) below the FY 2007 enacted level but 13 percent above the President's request and Senate proposed levels. Some of this increase is provided for the Civil Aeronautics Decadal priorities recommended by the NRC.

Within the amount provided for SAE, the bill includes \$3.842 billion for exploration activities, which is \$440 million (12.9 percent) above the FY 2007 level. The funding provided includes \$209.5 million for the Lunar Reconnaissance Orbiter and \$42 million for a lunar lander mission.

The final bill includes \$180 million for education which is \$27 million above the President's request level and \$30 million above the Senate level, but \$50 million below the favorable House funding. This amount includes \$43.2 million for the Space Grant program, a \$7.7 million increase above the request, and \$14 million for a competitive education grant program for non-profit organizations and public schools.

However, congressionally supported earmarks would come from the amount provided for Cross-Agency Support Systems which includes funding for Education. Therefore, it is unclear to what extent Education funding would be affected by these projects.

Amendment to Senate Bill (10/5/07):

U.S. Senator Kay Bailey Hutchison (R-TX), Ranking Member of the Senate Commerce Subcommittee on Space, Aeronautics and Related Sciences, and Sen. Barbara Mikulski (D-MD), the Chairman of the Commerce, Justice and Science Appropriation (CJS) Subcommittee, passed an amendment to the FY 2008 CJS appropriations bill to provide \$1 billion in additional ("emergency") funding for NASA. The funding will reimburse the agency for costs incurred for returning the Space Shuttle to flight status following the Columbia disaster and implementing recommendations of the Columbia Accident Investigation Board.

Detail on Senate markup (6/29/07):

On June 28, 2007, the Senate Appropriations Full Committee marked up the FY 2008 Commerce-Justice-Science (CJS) Appropriations bill, which includes funding for NASA. The bill is scheduled to go to the Senate floor sometime in July. **UPDATE: It passed on Oct. 16th.**

On the House side, due to the turmoil over how to handle member earmarks, the House CJS bill has been marked up at Subcommittee, but not yet at Full Committee. The current schedule is for the House Appropriations Full Committee to mark up CJS on July 11 (adding earmarks), with House floor consideration the week of July 16. Overall, the House and Senate versions of the CJS bill each contain significantly (over \$2 billion) more funding than what was requested by the

Administration. President Bush has indicated his intent to veto Congressional spending bills that exceed his budget proposals, so these bills—as good as they both are for science programs—are far from a "done deal."

The Senate appropriators provide \$17.459 billion for FY 2008 for the National Aeronautics and Space Administration (NASA), which is \$150 million more than the President's budget request, \$1.2 billion more than the FY 2007 enacted level, but \$140 million less than provided by the House. While the Committee does not object to NASA's continued Moon-Mars efforts, the increase provided is primarily for science, with \$140 million above the President's request provided for science specifically, to address the concern that "the strong, balanced science program that has served the Nation so successfully for many years is being left behind rather than being nurtured and sustained." The overall level includes \$70 million in Congressionally Directed Projects (earmarks).

Science: The Committee provides the Science Mission Directorate with \$5.655 billion, which is \$140 million more than the President's budget request but \$40 million less than the House provided. This increased funding is almost entirely devoted to Earth Science.

With the increased available funds for Earth Science:

- \$15 million is provided for the Earth Science Applications Program to support new competitively selected applications projects for FY 2008;
- \$25 million is provided to begin studies associated with missions recommended by the National Research Council's recent Earth Science Decadal Survey (as compared to \$60 million provided for this purpose by the House); and
- \$20 million is provided for the Living With A Star Program for the Solar Probe Mission.

Within the Astrophysics Theme, an additional \$30 million is provided for the Hubble Space Telescope which may address an expected funding gap due to launch delays for the next servicing mission. This funding is offset through a \$30 million cut to the Navigator Program and the Space Interferometry Mission.

Aeronautics: The Committee provides the President's budget request for Aeronautics with \$554 million, which is \$146 million less than the House level and \$162 million less than the FY 2007 enacted level.

Education: The Committee provides Education with \$150 million, which is \$4 million less than the President's request level and \$68 million less than the House level. Unlike in the House, Education funding remains within Cross-Agency Support Programs.

Exploration: The Committee provides \$3.97 billion for the Exploration Systems Mission Directorate, which is \$50 million more than the President's request level and the House level. This increase is provided for the Crew Launch Vehicle.

Space Operations: The Committee provides the President's budget request for Space Operations Mission Directorate with \$6.79 billion, which is \$100 million above the House level.

Detail on House markup (6/19/07):

The House Appropriations Committee has postponed the full committee mark up of the FY 2008 Commerce-Justice-Science (CJS) Appropriations bill due to the ongoing turmoil over how to handle member earmarks. Under the agreement between House Democrats and Republicans, the earmarks for the CJS bill are to be added by the full committee before the bill is debated on the House floor (**UPDATE: It passed July 26th**). That meeting is not yet scheduled.

The House FY 2008 Commerce-Justice-Science appropriations bill provides \$17.599 billion for the National Aeronautics and Space Administration (NASA), which is \$290 million more than the President's budget request and \$1.3 billion more than the FY 2007 enacted level. While the Subcommittee does not object to NASA's continued Moon-Mars efforts, the increase provided is primarily for science, aeronautics, and education, with a \$100 million reduction for human space flight programs, such as the International Space Station (ISS).

Science

The bill provides the Science Mission Directorate with \$5.696 billion, which is \$180 million more than the President's budget request and \$825 million more than the FY 2007 enacted level. In the Congressional report language, the Subcommittee stipulates that the additional funds provided are to help NASA achieve more balance among its activities, but recognizes that the bill still does not provide enough funds to fully restore all of the cuts made to important science and aeronautics programs. The report language further states that these programs should be funded at the same rate as the "Innovation Agenda" research and development accounts at other agencies.

The \$180 million increase for Science is allocated as follows:

- \$60 million is provided for the Research and Analysis (R&A) program, recognizing the importance of this program to young scientists and researchers. The funding is to be used for both in-house and academic research and is to be allocated equitably among all four of the science themes;
- \$60 million is provided for technology development associated with missions recommended by the National Academies' recent Earth Science Decadal Survey. This funding is for several intensive Phase A studies for CLARREO, SMAP, ICESat-II, and DESDynI, and pre-Phase A studies for HypIRI, ASCENDS, and SWOT, if possible;
- \$50 million is provided for the Space Interferometry Mission (SIM), and NASA is directed to use the funding to begin the development phase of the program; and
- \$10 million is provided for a mission to the outer planets, which is currently being studied by NASA to determine a destination.

The bill's report language also directs NASA to contract with the National Academies to address future concerns regarding non-solar power supplies for missions traveling further and further from the Sun.

Aeronautics

The bill provides Aeronautics with \$700 million, which is \$146 million more than the President's budget request but \$16.7 million less than the FY 2007 enacted level. A portion of the increase over the request is for the Next Generation Air Transportation System as well as to address top priorities in the National Academies' Decadal Survey of Civil Aeronautics. Finally, funding is provided for research and development on engines and airframes that will result in significantly reduced energy consumption, emissions, and noise.

Exploration

The bill provides the President's budget request of \$3.92 billion for the Exploration Systems Mission Directorate, which is \$467 million more than the FY 2007 enacted level. While providing the requested level, the Subcommittee does direct NASA to reallocate FY 2008 funds within this account to increase life and microgravity sciences by \$13.5 million. The Subcommittee also expresses concern that NASA will not be able to complete the Crew Exploration Vehicle on schedule (by 2014-2015) and on budget.

Space Operations

The bill provides the Space Operations Mission Directorate with \$6.69 billion, which is \$100 million below the President's budget request but \$545.37 million above the FY 2007 enacted level. The bill would cut \$85 million from the Tracking and Data Relay Satellite System (TDRSS) procurement, \$18 million from the reserves of the International Space System (ISS), and \$2 million from the purchase of ISS crew cargo services. The Subcommittee does add \$5 million to begin the process of upgrading the Deep Space Network in FY 2008.

Education

The bill provides Education with \$217.3 million, which is \$63.6 million more than the President's budget request and \$77.6 million more than the FY 2007 enacted level. (Education funding is broken out from other cross-agency support activities to highlight the importance of these programs and increase transparency.)

With the additional funding over the FY 2008 request, the Experimental Program to Stimulate Competitiveness in Research (EPCSCoR) would be increased by \$3.2 million for a total of \$15.5 million. The Space Grant College and Fellowship program would be increased by \$7.7 million for a total of \$43.0 million. The NASA Graduate Students Research Program would be increased by \$5 million, with \$2 million of that specifically for NASA Aeronautics Scholarships. NASA is also instructed to fund two competitive programs at \$10 million each: (1) for programs related to space exploration, aeronautics, space science, earth science, and microgravity at science museums and planetariums, and (2) for programs to educate students on global climate change.

NASA is directed to determine how to split the remainder (\$28 million) of the increase over the request among its education programs.

Detail on President's FY 2008 Request (2/5/07):

Under the FY 2008 budget request, NASA would receive \$17.3 billion, or 3.1 percent (+\$517 million) above the FY 2007 request and possibly as much as \$1 billion over the final amount included in the joint funding resolution being debated in the Senate.

Continuing its annual trend of reorganization, NASA has changed the means by which it counts overhead and the accounts through which it funds individual missions, making comparisons from prior fiscal years to the current budget request difficult. Like last year, when compared to the overall tightening of non-defense discretionary programs within the federal budget, NASA fared better than several other agencies but not as well as some.

The NASA budget is organized into three funding accounts – the Science, Aeronautics, and Exploration (SAE) account, which includes almost all the science and academic programs; the Exploration Capabilities (EC) account, which includes the Space Flight support; and the Inspector General account.

Science, Aeronautics, and Exploration Account (SAE)

The Administration has requested \$10.483 billion for the SAE account, a reduction of \$167 million, or 1.57 percent, from the FY07 budget request.

Science Mission Directorate (SMD)

Within this amount, the Science Mission Directorate would receive \$5.516 billion, an increase of \$49.2 million, or one percent, above the FY07 budget request, continuing the trend for science which Administrator Griffin introduced last year. Within Science, Earth Science and Heliophysics received the larger increases, while Planetary Science and Astrophysics were cut and remained flat respectively.

Earth Science – Overall this account would receive \$1.497 billion or \$33 million more than the FY 2007 request level, including decreases in the Research and Analysis awards, but increases in funding for Landsat Data Continuity Mission (LDCM), Glory mission, NPOESS Preparatory Project (NPP), and Global Precipitation Measurement (GPM) mission to maintain current schedule.

Heliophysics – Overall this account would receive \$1.057 billion or \$29 million more than the FY 2007 request level, including decreases for the Solar Dynamics Observatory but increases in other Living With a Star programs and for Research and Analysis awards.

Planetary Sciences – Overall this account would receive \$1.395 billion or \$15.4 million less than the FY 2007 request level, with a significant portion coming from the Mars program, but also including new opportunities for the New Frontiers program, full funding for the Mars Science Laboratory, and increases for the Research and Analysis awards.

Astrophysics – Overall this account would receive \$1.565 billion or \$2.8 million more than the FY 2007 request level, with flat funding for Research and Analysis and reductions in the Navigator program, which includes a downgrade of the Space Interferometry Mission to a technology development program.

Exploration Systems Mission Directorate (ESMD)

Within the SAE account, the Office of Exploration Systems, which includes the majority of the President's programs supported within the Moon-Mars Vision announced in January 2004, the Exploration Systems Mission Directorate would receive \$3.923 billion, a reduction of \$228 million, or 0.5 percent below the FY07 budget request.

Constellation Systems – The request proposes \$3.068 billion, a cut of \$164 million, or one percent, below the FY07 budget request. A majority of this funding would be for further developments in a new Crew Exploration Vehicle and a Crew Launch Vehicle.

Advanced Capabilities – The request proposes \$855.8 million, a cut of \$64.2 million, or about 7 percent, below the FY 07 budget request. This reflects continued trends in reductions for exploration systems technology and human research, as well as cuts in funding for lunar robotic exploration.

Aeronautics Research Mission Directorate (ARMD)

Within the SAE account, The Aeronautics Research Mission Directorate would receive \$554 million, an increase of \$24.7 million, or 4.67 percent, above the FY07 budget request. Aeronautics was proposed for a large decrease last year but Congress restored it (for the second year in a row) in the currently debated joint resolution.

The request would include \$293.4 million (down \$12 million) for the Fundamental Aeronautics Program, with four key research areas:

- combustion foundational research and aerothermodynamics system integration for the Subsonic Fixed Wing project;
- advanced control methods and cabin noise modeling and reduction for the Subsonic Rotary Wing project;
- high-temperature sensors, advanced inlet/nozzle concepts, aero-propulsive-servo-elasticity and lightweight multifunctional materials for the Supersonics project; and
- advanced structural concepts, durability technologies, and nondestructive evaluation methods for the Hypersonics project.

The long-term goals of the Fundamental Aeronautics Program (FA) are to significantly advance the state-of-the-art in fundamental technologies critical to reducing noise, emissions and fuel consumption and increasing the performance of future vehicles in all speed regimes. In addition, the FA Program contributes to the development of fundamental ideas and models to aid in the Entry, Descent, and Landing (EDL) phase of re-entry vehicles.

Education Program

Within the SAE account, the Education program would receive \$153 million, a reduction of \$13.7 million, or eight percent, below the FY07 budget request. This is the fourth year in a row that the office would be reduced despite being projected to receive the same level in future years. The majority of this decrease would be in the Higher Education and Informal Education programs.

Within the Higher Education program:

- The phase out begun in FY 2005 of the Undergraduate Student Research Program (USRP) has stopped and USRP would receive \$3.69 million (same as last year's request); and
- Space Grant would receive \$29 million, or \$0.2 million above last year.

Exploration Capabilities

The Exploration Capabilities account would receive \$6.797 billion, (up 11.2 percent) from the FY 2007 request, reflecting substantial increases of approximately \$683.4 million (more than the overall NASA increase).

This amount would include:

- \$10 million decrease for the Space Shuttle program;
- \$476 million increase for the International Space Station – primarily for assembly and support; and
- \$217 million increase for Space and Flight Support.