# FY 2011 Appropriations for the National Aeronautics & Space Administration (NASA)

**NASA FY 2011 Request**  
(numbers are in millions)

<table>
<thead>
<tr>
<th>NASA</th>
<th>FY 2010 Estimate</th>
<th>FY 2011 Request</th>
<th>% Change FY10 vs. FY11 Req.</th>
<th>House CJS Subcomm.*</th>
<th>% Change House vs. FY10</th>
<th>Senate Approps Comm.</th>
<th>% Change Senate vs. FY10</th>
<th>Final</th>
<th>% Change FY10 vs. FY11</th>
</tr>
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<tbody>
<tr>
<td>Science</td>
<td>4,469.0</td>
<td>5,005.6</td>
<td>12.0%</td>
<td>4,704.5</td>
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<td>Earth Science</td>
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<td>1,801.8</td>
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<td>Earth Science Research</td>
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<td>438.1</td>
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<td>Earth Systematic Missions</td>
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<td>809.3</td>
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<td>Decadal Survey Mission SMAP</td>
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<td>Decadal Survey Mission ICESat-II</td>
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<td>Earth Systemic Science Pathfinder</td>
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<td>303.8</td>
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<tr>
<td>Orbital Carbon Observatory-2</td>
<td>25.0</td>
<td>171.0</td>
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<tr>
<td>Heliophysics</td>
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<td>641.9</td>
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<td>Heliophysics Research</td>
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<td>Living with a Star</td>
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<td>New Millennium</td>
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<tr>
<td>Planetary Science</td>
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<tr>
<td>Astrophysics</td>
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<td></td>
<td>1,076.3</td>
<td>-2.5%</td>
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FY11 Update 4-15-11

Yesterday, more than six months into Fiscal Year 2011, the U.S. House and Senate approved FY11 spending legislation to fund the operations of the federal government through September 30, 2011, or the end of this fiscal year. In back-to-back floor votes, the House passed the bill with bipartisan vote of 260 to 167 while the Senate passed it by a vote of 81 to 19. President Obama supports the deal and is expected to sign the bill into law today.

The spending bill was drafted this week based on a bipartisan plan negotiated by President Obama, House Speaker John Boehner, and Majority Leader Harry Reid, agreed to at the midnight hour on Friday, April 8, and effectively averting an imminent government shutdown. The bill cuts a total of $38.5 billion from both mandatory and discretionary spending accounts compared to FY10 levels. Compared to other areas of the government, science agencies are subject to small reductions, reflecting the restrained fiscal climate, but also demonstrating bipartisan congressional support for R&D.

NASA is funded at $18.485 billion, $239 million or 1.3% less than the level at which it was funded in FY10. The bill removes restrictions on the human space flight program, allowing NASA to move forward with its replacement of the Constellation rocket development program as authorized in the NASA Authorization Act passed this fall.

FY11 Update 7-27-10 (provided by Lewis-Burke Associates):

On June 29, the House Commerce, Justice, Science Appropriations Subcommittee marked up its version of the Fiscal Year (FY) 2011 Commerce, Justice, Science (CJS) appropriations bill. The bill includes a total of $60.5 billion in discretionary funding, which is slightly below the President’s budget request and $3.9 billion below the FY 2010 enacted level. (The decrease from FY 2010 reflects the reduction in funding for the Census Bureau following completion of the 2010 Census.) The full House Appropriations Committee has yet to take up the bill.

On the Senate side, the Senate Appropriations Committee approved its version of the FY 2011 CJS appropriations bill on July 22, but a floor vote in the Senate has yet to be scheduled. The bill includes $60.1 billion in total discretionary funding, about $400 million below the President’s request and the House Subcommittee mark.
Both the House and Senate versions of the CJS appropriations bill recommend $19 billion in funding for NASA, which is the same level as the President’s request and 1.5 percent above the FY 2010 level.

NASA Science programs do well in both bills, and would receive the full request in the Senate and the full request, adjusted to reflect an accounting disagreement, in the House. Within the Science account, the Senate bill would provide the full request for the President’s Earth Science budget, including funding to accelerate the Tier 1 Earth Science Decadal Missions; $171 million to re-fly the Orbiting Carbon Observatory (OCO); and $438 million for Earth Science Research. Overall, Earth Science would receive $1.802 billion. Within these funds, the bill would recommend that $5 million be provided for IceBridge to continue polar sea ice measurements during the gap between IceSat-1 and IceSat-2 and that $10 million be provided to the development of a carbon monitoring system that was initially funded in FY 2010. The Senate bill would also fund Heliophysics at the President’s request level of $642 million, 2.3 percent above the FY 2010 enacted level.

The bill would provide the full request for Solar Probe Plus and other major missions, while directing $500,000 to a cost and feasibility study for the Solar Sentinels program. Both the Planetary Science and Astrophysics divisions would receive the full budget request in the Senate bill, continuing funding for flagship missions to Mars as well as the James Webb and Hubble space telescopes. The Committee also expresses interest in expeditious development of the NASA-Department of Energy Joint Dark Energy Mission, pending the results of the National Research Council’s decadal survey on astrophysics later this summer.

The Senate bill would fully fund Aeronautics Research at $580 million, a 14 percent increase over FY 2010, while the House bill would provide $375 million, $205 million below the request and $126 million below FY 2010 (some of this adjustment is due to accounting disagreements between the House and the Administration). Both bills would fund the President’s proposed new Space Technology Program, although at lower levels than the President’s request. The Senate bill would provide $325 million, $247 million below the request level, for the program, which would build on the current Innovative Partnerships Program for universities and industry to develop advanced technologies in areas such as communications, sensors, robotics, materials, and propulsion. The House version would provide $512 million for the Space Technology Program, $60 million below the President’s request.

The President’s budget request proposed dramatic changes to NASA’s exploration activities, including cancellation of the Constellation Program, which has been funded since 2006 to develop next generation human spaceflight capabilities, in favor of a shift towards technology development and commercial spaceflight. The Senate bill would partly endorse the President’s restructuring of exploration, and would include $350 million for exploration research and development, $642 million below the President’s request, and $250 million for commercial human spaceflight, half of the President’s request. The Senate bill would also continue some elements of the Constellation program: providing $1.9 billion for a heavy lift launch vehicle, $1.34 billion more than the President’s request, and continuing funding for the Orion Crew Exploration Vehicle at $1.1 billion. The House Subcommittee failed to take a position on the President’s proposed new direction for Human Space Exploration, making the exploration funding contingent on decisions to be made in legislation currently under development by NASA’s Congressional authorizing committees.

The House bill would provide $205 million for Education, $59 million above the request level, while the Senate would provide the request level. The Senate bill would largely endorse the President’s education
request, but would direct NASA to more fully account for its Agency-wide education activities, especially activities funded outside of the education directorate, in future budget requests.

**Details on the President’s FY 2011 Budget Request (2-1-10):**

On February 1st, President Obama submitted to Congress an unprecedented $3.8 trillion FY 2011 budget request. The proposed budget, which includes a renewed emphasis on job creation and economic growth, provides significant increases for education, scientific research and development, and innovation programs.

Highlighting the prioritization of these programs, the increases would be provided despite the White House instituting a three-year freeze in overall spending for non-security domestic discretionary programs projected to save $250 billion over the next decade.

President Obama’s FY 2011 budget request would provide the National Aeronautics and Space Administration (NASA) with $19.0 billion, which is $276 million, or 1.5 percent, above the FY 2010 enacted level. The request also projects $6 billion in increases over the next five years (FY 2011- FY 2015) and provides significant increases for Earth Science and technology development.

The President’s budget request would make dramatic changes to NASA’s programmatic activities, most noticeably by canceling the Constellation Program, which has been funded since 2006 to develop next generation human spaceflight capabilities, and ending the Space Shuttle Program in late 2010 or early 2011. Given the potential negative workforce implications of these changes, it is unlikely that Congress will accept all of the Administration’s proposed human spaceflight reductions.

The NASA budget is organized in eight (formerly seven) funding accounts – Science; Aeronautics and Space Research and Technology; Exploration; Space Operations; Education; Cross-Agency Support; Construction and Environmental Compliance and Restoration; and Inspector General accounts. The complete NASA budget request is not yet available; however a partial analysis is included below.

**Science**

The Obama Administration’s request would provide $5.006 billion for the Science account, an increase of $512 million, or 11.4 percent, over the FY 2010 enacted level. Consistent with last year’s budget prioritization, most of this increase is for Earth Science, but Planetary Science and Heliophysics would also see overall increases. Astrophysics would receive a decrease.

**Earth Science**

In the request for the Science Mission Directorate, Earth Science is the big winner, and would receive $1.802 billion, an increase of $381 million, or 26.8 percent, over the FY 2010 enacted level. The request includes:

- $170 million to re-fly the Orbiting Carbon Observatory, with a planned launch date of 2013;
- Funding to expand and accelerate Venture-class missions;
• Funding to accelerate the Decadal Survey Missions (SMAP to launch in 2014 and and ICESat-2 to launch in 2015. CLARREO and DESDynl may launch as soon as 2017, approximately two years earlier than previously planned)

• Funding to enhance climate change modeling and effects forecasting;

• Funding to launch Glory, NPOESS Preparatory Project (NPP), and Aquarius; and

• Continued funding for Landsat Data Continuity Mission (LDCM) and Global Precipitation Measurement (GPM).

**Planetary Science**

The budget request would provide $1.486 billion for Planetary Science, an increase of $144 million, or 10.8 percent, over the FY 2010 enacted level. The request includes:

• Funding to launch Mars Science Laboratory (MSL) in the fall of 2011;

• Continued funding of concept development for a future Europa Jupiter System Mission; and

• $16 million for identification and cataloging of Near Earth Objects.

**Astrophysics**

The budget request would provide $1.076 billion for Astrophysics, a decrease of $28 million, or 2.5 percent, from the FY 2010 enacted level. The Administration is waiting for the completion of the Astro2010 Decadal Survey to establish new priorities in this theme. However, the request includes funding for the next Explorer Mission, NuSTAR, to launch in 2012 and continues funding for Astro-H and the James Webb Space Telescope (JWST) to launch in 2014.

**Heliophysics**

The budget request would provide $642 million for Heliophysics, an increase of $14 million, or 2.3 percent, over the FY 2010 enacted level. The request includes funding to initiate the Solar Probe Plus mission.

**Aeronautics and Space Research and Technology**

The budget request would provide $1.152 billion for Aeronautics and Space Research and Technology, an increase of $645 million, or 127.2 percent, over the FY 2010 enacted level. Of this increase, $572 million is for a new Space Technology program.

**Aeronautics Research**

The Aeronautics Research program would receive $580 million, an increase of $73 million, or 14.3 percent, over the FY 2010 enacted level. This is the first real increase for Aeronautics Research in eight years and comes after large decreases from the account’s $1.5 billion peak in 2002.
Space Technology

The budget request proposes $572 million for a new Space Technology Program that would build on the current Innovative Partnerships Program for universities and industry to develop advanced technologies in areas such as communications, sensors, robotics, materials, and propulsion. Congress has highlighted advanced technologies in several hearings as an area for NASA to refocus its energy and connect to the Administration’s Innovation agenda.

Exploration

The Administration’s budget request would provide $4.263 billion for the Exploration account, an increase of $484 million, or 12.8 percent, over the FY 2010 enacted level. The budget request reflects the recommendations of the Augustine Committee’s Review of U.S. Human Spaceflight Plans, which proposed an end to development of the Ares-1 rocket in favor of commercial space flight to Low Earth Orbit and a broadening of potential human spaceflight destinations beyond the moon to include asteroids, planetary flybys, and others on a flexible path of exploration.

The budget request would replace Constellation with several new programs:

- $652 million (which would increase to $1.26 billion in 2012) for Exploration Technology and Demonstration through a Flagship Demonstration Program and an Enabling Technology Development Program;

- $559 million for Heavy-lift and Propulsion Research and Development to replace Constellation’s Ares-5 heavy-lift launch vehicle;

- $125 million (which would increase to $506 million in 2012) for Robotic Precursor Missions to the Moon, Mars, Lagrange points, and asteroids to explore targets for future human spaceflight; and

- $500 million (which would increase to $1.4 billion in 2012) to spur the development of commercial human spaceflight vehicles.

In addition, the budget request would provide a 42 percent increase over the FY 2010 enacted level for the Human Research Program.

Education

The President’s budget request would provide $146 million for Education, a decrease of $38 million, or 20.7 percent, from the FY 2010 enacted level. This reduction is primarily the result of the proposed elimination of funds for Congressional earmarks included in the FY 2010 appropriations bill. The request proposes a $20 million increase in the base NASA education program, including funding for a new Innovation in Higher Education STEM Education program that will attempt to engage undergraduate and graduate students in STEM (science, technology, engineering, and mathematics) disciplines.

Space Operations
The President’s budget request would provide $4.888 billion for Space Operations, a decrease of $1.293 billion, or 20.9 percent, from the FY 2010 enacted level. This decrease is primarily due to the planned retirement of the space shuttle in late 2010 or early 2011.

The request includes:

• $989 million for the Space Shuttle program;

• $2.78 billion for the International Space Station (ISS), including an extension of the U.S. commitment to the ISS to 2020 and funding to fully utilize the ISS’s capabilities to conduct research and demonstrate new technologies;

• $1.12 billion for Space and Flight Support.