# FY 2012 Appropriations for the National Aeronautics & Space Administration (NASA)

**NASA FY 2012 Request**
(numbers are in millions)

<table>
<thead>
<tr>
<th>Category</th>
<th>FY 2011 Final</th>
<th>FY 2012 Request</th>
<th>House Mark</th>
<th>Senate Mark</th>
<th>FY12 Minibus</th>
<th>% change FY12 vs FY11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>4,919.7</td>
<td>5,016.8</td>
<td>4,504.0</td>
<td>5,100.0</td>
<td>5,090.0</td>
<td>3.4%</td>
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<tr>
<td>Earth Science</td>
<td>1,721.9</td>
<td>1,797.4</td>
<td>1,699.0</td>
<td>1,765.5</td>
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<tr>
<td>Earth Science Research</td>
<td>461.1</td>
<td>450.4</td>
<td></td>
<td>435.0</td>
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<tr>
<td>Earth Systematic Missions</td>
<td>841.2</td>
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<td>886.8</td>
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<tr>
<td>Decadal Survey Mission SMAP</td>
<td></td>
<td></td>
<td>137.3</td>
<td>137.3</td>
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<tr>
<td>Decadal Survey Mission ICESat-II</td>
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<td>113.4</td>
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<tr>
<td>Earth System Science Pathfinder</td>
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<td></td>
<td>189.9</td>
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<tr>
<td>Orbital Carbon Observatory-2</td>
<td></td>
<td></td>
<td>91.0</td>
<td>90.5</td>
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<td>Earth Science Multi-Mission Operations</td>
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<td></td>
<td>167.6</td>
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<td>Earth Science Technology</td>
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<td></td>
<td>50.2</td>
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<td>Applied Sciences</td>
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<td>Heliophysics</td>
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<td>622.3</td>
<td>622.3</td>
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<tr>
<td>Planetary Science</td>
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<td>Astrophysics</td>
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<td>Aeronautics</td>
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<tr>
<td>Space Technology (new)</td>
<td>-----</td>
<td>1,024.0</td>
<td>375.0</td>
<td>637.0</td>
<td>575.0</td>
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<tr>
<td>Exploration</td>
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<tr>
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<tr>
<td>Education</td>
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<td>138.0</td>
<td>138.4</td>
<td>138.4</td>
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<td><strong>TOTAL, NASA</strong></td>
<td>18,448.0</td>
<td>18,724.3</td>
<td>16,810.2</td>
<td>17,938.7</td>
<td>17,800.0</td>
<td>-3.5%</td>
</tr>
</tbody>
</table>
November 15, 2011: House and Senate Conference Numbers and Language in FY 2012

“Minibus” Bill:

- The conferees provide James Webb Space Telescope $529.6 million (the House had zeroed it out)
- In proposing reductions, NASA should take care to protect, to the extent possible, high priority missions of the decadal surveys.
- The conferees instruct NASA to fund the DESDnyI mission at FY11 levels
- The report provides $10 million for the development of a carbon monitoring system started in FY10.

September 16, 2011: Senate Appropriations Committee Approves FY 2012 CJS bill

On September 15, the Senate Appropriations Committee approved four fiscal year (FY) 2012 appropriations bills: Defense; Legislative Branch; Financial Services; and Commerce, Justice, Science (CJS).

Given the priorities of the CJS Subcommittee leaders, Chairwoman Barbara Mikulski (D-MD) and Ranking Member Kay Bailey Hutchison (R-TX), NOAA and NASA fare relatively well in the Senate CJS bill. However, in light of budget constraints, NSF would receive a small cut.

Although it is unlikely Senate appropriations bills will move to the floor, Congress may try to wrap up the FY 2012 appropriations process by fashioning an omnibus by mid-November, giving lawmakers time to focus entirely on deficit reduction negotiations before the end of the calendar year. In the near term, Congress is expected to pass a continuing resolution (CR) to fund the federal government beyond the start of the new fiscal year on October 1. The current proposed CR would provide ongoing funding at the FY 2011 enacted levels with a 1.409 percent across-the-board reduction assessed in every program, including defense, to fund the government on an annualized basis that comports to the $1.043 trillion overall cap on discretionary spending for FY 2012 enacted in the Budget Control Act (debt limit agreement) last August.

For FY 2012, NASA would face some reductions under the Senate bill, but would fare better than in the House bill. Overall, NASA would receive $17.939 billion, $509 million or 2.9 percent below the FY 2011 level and $786 million below the President’s request, but $1.129 billion more than the House would provide.

Unlike NASA overall, NASA Science would be up 3.3 percent from the FY 2011 level to $5.1 billion, $83 million above the President’s request and $596 million more than the House. Much of the increase is devoted to the James Webb Space Telescope ( JWST), for which the Committee provides $530 million, $156 million above the request to accommodate a new cost baseline and ensure launch by 2018. This is a large contrast to the House bill, which calls for the termination of JWST due to several years of budget and schedule overruns. Earth Science would also fare much better than in the House bill, receiving $66.5 million more than the House would provide, but still $32 million less than the President’s request. Unlike the House, which did not detail funding levels within Science Divisions, the Senate Committee would allocate funding down to the mission account level. However, these levels are not easily compared to the budget request due to a difference in accounting for labor costs. The Senate bill would provide the full budget request for tier-1 Earth Science Decadal Missions SMAP, IceSat-2, and CLARREO, while recommending the DESDnyI mission continue at its FY 2011 level. It would also provide the full request for IceBridge.
to continue polar sea ice measurements during the gap between IceSat-1 and IceSat-2, and $10 million for the development of a carbon monitoring system that was initially funded in FY 2010. Furthermore, the Senate Committee would provide $435 million for Earth Science Research.

Planetary Science would be funded at $1.5 billion, $40.3 million below the President’s request but $400,000 more than the House would provide. As with the House bill, the Committee notes the Planetary Science Decadal Survey’s recommendation to de-scope the top recommended flagship missions to fit within budget constraints. As with the House bill and requested in the President’s budget, the Senate Committee would allow $10 million to conduct a joint effort with the Department of Energy to restart production of Plutonium-238, a critical element for exploration.

The Astrophysics and Heliophysics accounts would each receive approximately the President’s request. These levels are similar to the levels the House would provide. Within these amounts, the Committee provides $16 million above the request for the Explorer program to ensure that future announcements can support a stand-alone mission in both astrophysics and heliophysics. The Committee also instructs NASA to request funds in FY 2013 for WFIRST, the top flagship mission recommended in the 2010 Astronomy and Astrophysics Decadal Survey.

Aeronautics, would receive $501 million, $33 million or 6 percent less than FY 2011, $68 million less than the President’s request, and $69 million less than the House would provide. Aviation safety and unmanned aircraft systems integration would be funded fully at the request level by the Committee. The Committee also recommends that NASA support competitive grants to develop the aeronautics STEM workforce, particularly at historically black colleges and universities.

The new Space Technology program would receive funding in an appropriations bill for the first time after not being mentioned in the FY 2011 bill. The amount provided, $637 million, would be far below the request level (down $387 million), but much more than the House would provide (up $262 million). The Committee notes that it regrets being unable to provide more funds for the program, and encourages the prioritization of ongoing efforts.

Education would receive $138 million in the Senate bill, the same as the request level and similar to what the House would provide, but $7 million and 5 percent below the FY 2011 level. The Senate bill would shift education funds, as compared to the request and the House bill, to provide considerably more support for the Space Grant and EPSCoR programs and less support for other STEM Education activities.

July 19, 2011: House Appropriations Committee Approves FY 2012 CJS bill

Despite the low likelihood that the House versions of the fiscal year (FY) 2012 appropriations bills will be enacted into law, the House Appropriations Committee approved the Commerce, Justice, Science, and Related Agencies (CJS) Appropriations bill July 7.

Unlike the FY 2011 appropriations agreement, NASA would not be protected from cuts in the House version of the FY 2012 bill. Overall NASA would receive $16.810 billion, $1.638 billion or 8.9 percent below the FY 2011 level. Within this amount, NASA Science would receive $4.504 billion, $513 million below the President’s request and approximately even with the FY 2010 level (account level details of final FY 2011 funding have not yet been released). Within this amount, no funding would be provided to the James Webb Space Telescope, which the Subcommittee recommends terminating after several years of budget and schedule overruns. Aeronautics, which
would receive $570 million, would be the only account to receive more than the President’s request, although its increase is only $530,000 or 0.09 percent. The new Space Technology program would receive funding in an appropriations bill for the first time after not being mentioned in the FY 2011 appropriations bill. However, the amount provided would be far below (63 percent) the request level at only $375 million. Education would receive $138 million, approximately the request level. This is a large reduction from the FY 2010 level of $182 million and is mostly accounted for by the lack of congressional earmarks in the bill.

**Lewis-Burke Associates Analysis of President’s FY 2012 Request:**

President Obama’s FY 2012 budget request would provide the National Aeronautics and Space Administration (NASA) with $18.724 billion, which is the same as the FY 2010 enacted level. The request would freeze NASA’s budget over the next five years (FY 2012- FY 2016) but would provide significant increases for Earth Science and technology development.

In the FY 2011 budget request, the President proposed 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. The passage of the NASA Authorization Act in the fall of 2010 ratified many of the proposed changes and in the FY 2012 request, the President has laid out a budget to implement the Authorization Act while maintaining NASA’s new priorities in technology development and commercial space flight.

The NASA budget is organized in nine (formerly eight) funding accounts – Science; Aeronautics; Space Technology; Exploration; Space Operations; Education; Cross-Agency Support; Construction and Environmental Compliance and Restoration; and Inspector General accounts.

**Science**

The Obama Administration’s request would provide $5.017 billion for the Science account, an increase of $548 million, or 12.2 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, Astrophysics, and Helio-physics would also see overall increases.

**Earth Science**

In the request for the Science Mission Directorate, Earth Science is again the big winner, although the levels are tempered from the FY 2011 request. Earth Science would receive $1.797 billion, an increase of $358 million, or 24.9 percent, over the FY 2010 enacted level. The request includes:

- Increased funding for Earth Science Research (up 9 percent), including increased funding for Interdisciplinary research and funding to enhance climate change modeling and effects forecasting;
- $91 million to re-fly the Orbiting Carbon Observatory, with an expected launch in February 2013;
- Funding to accelerate the Decadal Survey Missions, with tier-1 launches now planned in 2014 (SMAP) and 2016 (ICESAT-2), and tier-2 missions Surface Water and Ocean
Topography (SWOT) and Active Sensing of Carbon dioxide Emissions over Nights, Days and Seasons (ASCENDS) to be launched by 2020; and

- Continued funding for Landsat Data Continuity Mission (LDCM) and Global Precipitation Measurement (GPM) with launch expected in 2013.

**Planetary Science**

The budget request would provide $1.541 billion for Planetary Science, an increase of $176 million, or 12.9 percent, over the FY 2010 enacted level. The request includes:

- Increased funding for Mars Exploration (up 36 percent), including funding to launch Mars Science Laboratory (MSL) in November 2011;
- Continued funding of concept and technology development for a future outer planets mission while awaiting the completion of the Planetary Science Decadal Survey (expected in March 2011), which will help determine what mission is selected;
- Increased funding for Technology (up 16 percent), including continued funding for a joint NASA and Department of Energy effort to restart production of Plutonium 238, which is a critical element for exploration; and
- Increased funding for Planetary Science Research (up 13 percent), including $20 million for identification and cataloging of Near Earth Objects.

**Astrophysics**

The budget request would provide $683 million for Astrophysics, an increase of $35 million, or 5.5 percent, over the FY 2010 enacted level. In addition, the request would provide $373.7 million for the James Webb Space Telescope (JWST), which now has its own budget category separate from the rest of Astrophysics. The completion of the Astro2010 Decadal Survey in August of 2010 helped establish new priorities for this theme, but until JWST is launched there is little funding available for development of new Tier 1 decadal missions. The request includes:

- Increased funding for Astrophysics Research (up 8 percent), including expanded funding for enabling technology;
- Funding to begin early planning for the highest priority decadal mission, Wide Field Infrared Survey Telescope (WFIRST); and
- Funding for the next Explorer Mission, NuSTAR, to launch in 2012, as well as a new funding category for Future Astrophysics Explorer Missions to increase the Explorer launch rate as recommended in the Decadal. Currently, funding for future Astrophysics explorer missions is provided in the Heliophysics account and moved to Astrophysics only after mission selection.

**Heliophysics**

The budget request would provide $622 million for Heliophysics, an increase of $14 million, or 2.4 percent, over the FY 2010 enacted level. The request includes funding to continue development and operations of Heliophysics missions such as Solar Probe Plus, Radiation Belt Storm Probes, and Magnetospheric Multiscale. The request also includes funding for a new Explorer mission to be chosen through a FY 2011 competition that is currently ongoing.
Aeronautics

Aeronautics would receive $569 million, an increase of $68 million, or 13.6 percent, over the FY 2010 enacted level. While less than the $580 million the Administration proposed in FY 2011, this would be a significant increase for Aeronautics after several years of large decreases from the account’s $1.5 billion peak in 2002. The request includes continued funding for the development of the Next Generation Air Transportation System (NextGen). No new initiatives are planned for FY 2012, but funding would be increased for such efforts as new materials development, alternative fuels research, technologies for efficient and safe airport surface operations. Funding for hypersonics research would be reduced.

Space Technology

The budget request proposes $1.024 billion for Space Technology, which was first proposed in the FY 2011 request and authorized in the NASA Authorization Act of 2010. Space Technology builds on the current Innovative Partnerships Program for universities and industry to develop advanced technologies in areas such as communications, sensors, robotics, materials, and propulsion.

Space Technology coordinates NASA’s Small Business Innovation Research (SBIR) program, proposed at $177 million; promotes Crosscutting Space Technology Development, proposed at $433 million; and in FY 2012 will also incorporate the Exploration Technology program, proposed at $261 million (up 72 percent from FY 2010). Elements of Space Technology include:

- Competitive Space Technology Grants, for fundamental research in space technology;
- A reestablished NASA Institute of Advanced Concepts (NIAC) for early-stage technologies;
- Game Changing Developments, which will use a Defense Advanced Research Projects Agency (DARPA) approach to maturing early-stage advanced technologies to mid-stage;
- Small Satellite Subsystem Technologies; and
- Technology Demonstration Missions to help mature technologies to flight readiness status.

Exploration

The Administration’s budget request would provide $3.949 billion for the Exploration account, an increase of $354 million, or 9.9 percent, over the FY 2010 enacted level. The budget request reflects the compromise enacted in the NASA Authorization Act of 2010, which ended the Constellation rocket development program in favor of a commercial space flight program, but directed NASA to continue development of a heavy-lift launch vehicle and a multi-purpose crew vehicle. The request proposes $793 million to support commercial space flight, $293 million more than was proposed in the FY 2011 request. Robotic Precursor Missions, which were proposed in the FY 2011 request and authorized in the NASA Authorization Act, are not included in the FY 2012 request.

The budget request would provide $143 million for the Human Research Program, a decrease of $3 million or 2 percent below the FY 2010 enacted level.

Education
The President’s budget request would provide $138 million for Education, a decrease of $44 million, or 24 percent, from the FY 2010 enacted level. This reduction is primarily the result of the proposed elimination of funds for Congressional-directed programs included in the FY 2010 appropriations bill, but also includes reductions for the NASA Space Grant program (down 42 percent) and the Experimental Program to Stimulate Competitive Research (EPSCoR, down 64 percent). NASA Education would be reorganized into two program areas in FY 2012: Aerospace Research and Career Development, which would include Space Grant and EPSCOR, and STEM Education and Accountability, which would include Minority University Research and Education, Formal and Informal Education, Evaluation, and Innovation in Education. The Office of Education was previously organized by type of client served (higher education, informal education, and K-12). NASA plans to focus funding in FY 2012 on existing commitments and decrease new grant awards.

**Space Operations**

The President’s budget request would provide $4.347 billion for Space Operations, a decrease of $1.800 billion, or 29 percent, from the FY 2010 enacted level. This decrease is primarily due to the planned retirement of the space shuttle in 2011. The request includes $637 million for the Space Shuttle program, $2.67 billion for the International Space Station (ISS), and $700 billion for Space and Flight Support.

**Cross-Agency Support**

The budget request would provide $3.192 billion for Cross-Agency Support, an increase of $173 million, or 5.7 percent, over the FY 2010 enacted level.