

Table II-12. NASA R&D

Table II-12. R&D in the National Aeronautics and Space Administration
(budget authority in millions of dollars)

	FY 2007 Actual	FY 2008 Estimate	FY 2009 Budget	Change FY 08-09	
				Amount	Percent
Detail of NASA Budget:					
1. Space Operations					
International Space Station	1,469	1,813	2,060	247	13.6%
Space Shuttle	3,315	3,267	2,982	-285	-8.7%
Space and Flight Support	329	446	733	287	64.2%
Total SPACE OPERATIONS	5,114	5,526	5,775	249	4.5%
2. Science					
Earth Science:					
Earth Science Research	350	376	381	5	1.3%
Applied Sciences	34	45	34	-12	-25.6%
Earth Sci. Multi-Mission Ops.	168	168	141	-27	-16.3%
Earth Systematic Missions	421	530	678	148	27.9%
Earth System Sci. Pathfinder	168	114	89	-25	-22.1%
Earth Science Technology	58	47	46	-1	-2.5%
Total Earth Science	1,199	1,280	1,368	87	6.8%
Heliophysics:					
Heliophysics Research	208	181	185	4	2.0%
Deep Space Mission Sys.	203	211	0	-211	-100.0%
Living with a Star	189	217	224	7	3.1%
Solar Terrestrial Probes	72	106	123	17	16.2%
Heliophysics Explorer Prog.	74	61	41	-20	-32.3%
Near Earth Networks	44	40	0	-40	-100.0%
New Millennium	41	26	4	-22	-83.3%
Total Heliophysics	831	841	577	-264	-31.4%
Planetary Science:					
Mars Exploration	635	554	387	-167	-30.2%
Discovery	128	153	247	94	61.4%
New Frontiers	107	132	264	132	99.6%
Technology	85	85	65	-20	-23.5%
Planetary Science Research	182	242	271	29	11.9%
Outer Planets	79	82	101	19	23.4%
Total Planetary Science	1,216	1,248	1,334	87	6.9%

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Astrophysics:					
Astrophysics Research	99	102	152	50	49.0%
Cosmic Origins	791	807	674	-133	-16.5%
- <i>James Webb Space Telescope</i>	399	448	372	-76	-17.0%
- <i>SOFIA 1/</i>	39	62	73	11	17.2%
- <i>Hubble Space Telescope</i>	280	229	155	-74	-32.2%
Physics of the Cosmos	201	159	157	-2	-1.3%
Exoplanet Exploration	185	163	48	-115	-70.4%
Astrophysics Explorer	89	106	131	24	22.7%
Total Astrophysics	1,365	1,338	1,162	-175	-13.1%
Total SCIENCE	4,610	4,706	4,441	-265	-5.6%
3. Exploration					
Constellation Systems:					
Constellation Sys. Program	2,024	2,341	2,875	534	22.8%
- <i>Program Integ. & Ops.</i>	662	531	748	217	41.0%
- <i>Crew Exploration Vehicle</i>	480	776	1,101	326	42.0%
- <i>Crew Launch Vehicle</i>	882	999	1,019	19	1.9%
- <i>Other</i>	0	36	7	-29	-80.4%
Commercial Crew & Cargo	91	131	173	43	32.6%
Total Constellation Systems	2,115	2,472	3,048	576	23.3%
Advanced Capabilities:					
Lunar Precursor Robotic Prog.	247	198	56	-142	-71.6%
Exploration Tech. Development	359	326	244	-82	-25.1%
Human Research Program	149	147	152	5	3.4%
Total Advanced Capabilities	755	671	452	-219	-32.6%
Total EXPLORATION	2,870	3,143	3,500	357	11.4%
4. Aeronautics					
Aviation Safety	87	67	63	-4	-5.9%
Airspace Systems	103	100	75	-26	-25.5%
Fundamental Aeronautics	330	270	235	-35	-12.8%
Aeronautics Test Prog.	74	75	74	-1	-1.6%
Total AERONAUTICS	594	512	447	-65	-12.7%
5. Education	116	147	116	-31	-21.3%

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6. Cross-Agency Support					
Center Mngmt. & Ops.	1,755	2,013	2,046	33	1.6%
Agency Mngmt. & Ops	971	830	946	115	13.9%
- <i>Innovative Partnerships</i>	189	147	176	29	19.7%
Institutional Investments	224	320	309	-11	-3.4%
Congressional Projects	0	80	0	-80	-100.0%
Total CROSS-AGCY. SUPPORT	2,950	3,243	3,300	57	1.8%
7. Inspector General					
undistributed rescission	32	33	36	3	8.9%
	0	-193	0	193	-100.0%
TOTAL NASA Budget	16,285	17,117	17,614	497	2.9%
<i>minus non-R&D activities:</i>					
<i>Space Shuttle</i>	-3,315	-3,267	-2,982	-285	-8.7%
<i>Space and Flight Support</i>	-329	-446	-733	287	64.2%
<i>Inspector General</i>	-32	-33	-36	3	8.9%
<i>Education</i>	-116	-147	-116	-31	-21.3%
<i>Cross-Agcy. Support for Non-R&D</i>	-889	-1,013	-948	-64	-6.4%
<i>Education & Training</i>	-21	-24	-20	-3	-13.8%
TOTAL NASA R&D	11,582	12,188	12,780	592	4.9%

Source: OMB R&D data for FY 2009, agency budget justification, and agency documents.
All figures are rounded to the nearest million. Changes calculated from unrounded figures.

NASA has proposed to restructure its programs in FY 2009.

Figures for all years have been adjusted to reflect the proposed structure.

Most program budgets are significantly less than in previous years because of the transfer of costs to Cross-Agency Support.

These data have been adjusted by AAAS to include R&D support costs in Cross-Agency Support as R&D funding, in line with historical trends.

1/ Stratospheric Observatory for Infrared Astronomy

Please see Chapter 9 for a discussion of NASA R&D.

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