

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 2001 Actual	FY 2002 Estimate	FY 2003 Budget	Change FY 02-03	
				Amount	Percent
Summary of R&D by Appropriation:*					
1. Human Space Flight (HSF)					
International Space Station	2,128	1,722	1,492	-230	-13.3%
Other HSF R&D	734	532	390	-142	-26.6%
Total HSF R&D	2,862	2,253	1,882	-371	-16.5%
2. Science, Aeronautics and Technology (SAT)					
Space Science	2,618	2,880	3,428	548	19.0%
Biological & Physical Research	365	828	851	23	2.8%
Earth Science	1,771	1,636	1,639	4	0.2%
Aero-Space Technology	2,248	2,544	2,856	312	12.3%
Academic Programs	133	227	144	-84	-36.8%
Total SAT	7,135	8,115	8,918	804	9.9%
<i>minus non R&D in SAT *</i>	<i>-109</i>	<i>-136</i>	<i>-125</i>	12	-8.6%
Total SAT R&D	7,025	7,978	8,794	815	10.2%
Total NASA R&D	9,887	10,232	10,676	444	4.3%
NASA Non-R&D Activities	4,470	4,781	4,441	-340	-7.1%
Total NASA Budget	14,357	15,013	15,117	104	0.7%
Detail of R&D in NASA Appropriations: *					
1. Human Space Flight (HSF)					
Russian Program Assurance	24	0	0	0	--
Vehicle	752	369	247	-122	-33.0%
Crew Return Vehicle	70	40	0	-40	-100.0%
Research ¹	457	0	0	0	--
Operations Capability	825	1,313	1,245	-68	-5.2%
Total Int'l. Space Station ¹	2,128	1,722	1,492	-230	-13.3%
Space Comm. & Data Sys. R&D	235	182	46	-137	-75.1%
Other HSF R&D incl. Support	499	349	344	-5	-1.3%
Total HSF R&D	2,862	2,253	1,882	-371	-16.5%

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				Amount	Percent
2. Science, Aeronautics and Technology (SAT)					
Space Science					
Outer Planets Program	0	0	15	15	--
SIRTF ³	118	113	47	-66	-58.1%
Hubble Space Telescope	180	172	139	-33	-19.2%
Relativity Mission	41	46	20	-26	-57.3%
TIMED ⁴	13	4	0	-4	-100.0%
Stratospheric Observatory	43	38	47	9	23.4%
Solar Terrestrial Relations	0	53	74	21	40.5%
Gamma-Ray Large Area Tele.	0	21	69	49	234.3%
Payload & Instru. Develop.	40	48	38	-10	-20.0%
Explorers	141	125	135	10	7.9%
Discovery	213	215	208	-7	-3.2%
Mars Exploration	430	415	437	22	5.4%
Mission Operations ²	123	175	385	210	120.4%
Technology Program ⁵	353	440	704	264	59.9%
Research Program	613	647	726	80	12.3%
Investments	13	0	0	0	--
Institutional Support *	297	370	384	14	3.8%
Total Space Science	2,618	2,880	3,428	548	19.0%
Biological and Physical Research					
Adv. Human Support Tech.	31	26	32	6	22.4%
Biomedical Research	70	69	81	12	16.6%
Fundamental Space Biology	41	35	56	21	58.6%
Physical Sciences Research	130	120	134	14	11.8%
Space Product Development	29	17	15	-2	-12.9%
Health Research	12	10	4	-6	-61.0%
Space Station Research ¹	0	371	347	-24	-6.5%
Investments/ Instit. Support *	52	179	182	4	2.0%
Total Bio. and Phys. Res. ¹	365	828	851	23	2.8%
Earth Science					
Earth Observing System	432	385	411	26	6.6%
EOS Data Info. System	279	293	74	-219	-74.6%
Earth Explorers	142	74	71	-3	-4.0%
Earth Sci. Program Science	350	341	354	13	3.9%
Apps., Education, Outreach	114	95	62	-33	-34.9%

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	FY 2001	FY 2002	FY 2003	Change FY 02-03	
	Actual	Estimate	Budget	Amount	Percent
Technology Infusion	100	102	91	-11	-10.9%
Mission Operations ²	58	48	248	200	420.6%
Investments	10	0	0	0	- -
Institutional Support *	287	298	329	31	10.2%
Total Earth Science	1,771	1,636	1,639	4	0.2%
Aero-Space Technology					
Revolutionize Aviation	573	599	541	-58	-9.7%
<i>Aviation Safety</i>	76	96	95	-1	-1.1%
<i>Vehicle Systems</i>	371	369	321	-48	-13.0%
<i>Airspace Systems</i>	126	134	125	-9	-6.6%
Advanced Space Transport.	391	578	879	301	52.1%
<i>Space Launch Initiative</i>	289	467	759	292	62.6%
<i>Space Trans. & Launch Tech.</i>	102	111	120	9	8.3%
Pioneer Revolutionary Tech.	278	277	275	-2	-0.7%
Aerospace Institut. Support ² *	844	926	1,013	87	9.4%
Commercial Tech. Programs	162	164	147	-17	-10.3%
Total Aero-Space Tech.	2,248	2,544	2,856	312	12.3%
Academic Programs					
Education Programs	77	143	62	-81	-56.8%
Minority Res. and Edu.	56	85	82	-3	-3.1%
Total Academic Programs	133	227	144	-84	-36.8%
<i>Conduct of R&D</i>	<i>7,062</i>	<i>7,491</i>	<i>8,272</i>	<i>781</i>	<i>10.4%</i>
<i>R&D Facilities & Capital Equip.</i>	<i>2,826</i>	<i>2,741</i>	<i>2,404</i>	<i>-337</i>	<i>-12.3%</i>

Source: OMB R&D data for FY 2003, agency budget justification, and agency documents.

¹ Space Station research, funded in Human Space Flight through FY 2001, was transferred to Biological and Physical Research in SAT beginning in FY 2002.

² The FY 2003 budget would transfer some Space Communications & Data Systems costs (mostly non-R&D costs) to R&D lines in Earth Science (\$40 mil. '02), Space Science (\$154 mil. '02), and Aero-Space Technology (\$12 mil. '02).

¹ Space Infrared Telescope Facility.

² Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics.

⁵ FY 2003 figures include \$126 million for two nuclear technology programs.

* Program support costs formerly funded in Mission Support are allocated to the HSF and SAT accounts. Most of these reallocated costs can be found in the Institutional Support lines. The Bush Administration proposal to fully fund retiree costs are included in these accounts. These costs are not counted as R&D.

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

Please see Chapter 10 for a discussion of NASA R&D.

Table II-12. NASA R&D

NASA Non-R&D Activities (budget authority in millions of dollars)					
	FY 2001	FY 2002	FY 2003	Change FY 02-03	
	Actual	Estimate	Budget	Amount	Percent
Non R&D in SAT	109	136	125	-12	-8.6%
Space Commun. & Data Non R&D	286	300	72	-228	-76.0%
Space Shuttle (in HSF)	3,119	3,273	3,208	-65	-2.0%
Payload & ELV Non R&D (HSF)	90	91	88	-4	-4.2%
Safety, Mission Assurance (HSF)	47	48	48	0	0.0%
Investm./Support Non R&D (HSF)	794	908	876	-33	-3.6%
Inspector General	24	25	26	1	3.6%
Total NASA Non-R&D Activities	4,470	4,781	4,441	-340	-7.1%

Source: *Budget of the United States Government FY 2003* and agency budget justification.

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

* Program support costs formerly funded in Mission Support are allocated to the HSF and SAT accounts. Most of these reallocated costs can be found in the Institutional Support lines. The Bush Administration proposal to fully fund retiree costs are included in these accounts. These costs are not counted as R&D.