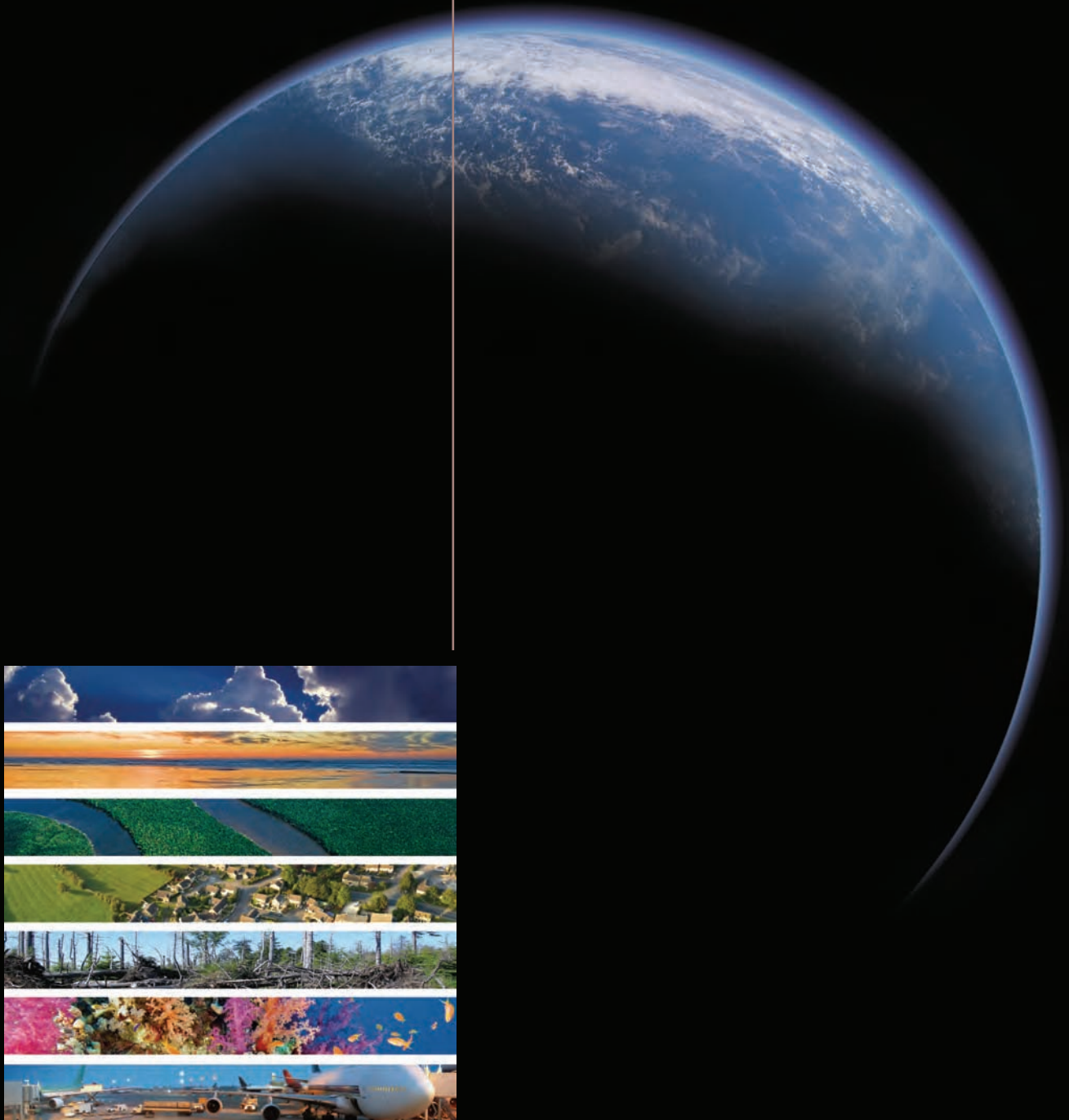


APPENDIX B
CLIMATE CHANGE SCIENCE PROGRAM
FY 2009 BUDGET TABLES



APPENDIX B

CLIMATE CHANGE SCIENCE PROGRAM FY 2009 BUDGET TABLES

CCSP integrates federally supported research on global change and climate change, as conducted by 13 U.S. Government departments and agencies:

- Department of Agriculture (USDA)
- Department of Commerce (DOC)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Department of Health and Human Services (HHS)
- Department of the Interior (DOI)
- Department of State (DOS)
- Department of Transportation (DOT)
- Agency for International Development (USAID)
- Environmental Protection Agency (EPA)
- National Aeronautics and Space Administration (NASA)
- National Science Foundation (NSF)
- Smithsonian Institution (SI).

CCSP incorporates and integrates the U.S. Global Change Research Program (USGCRP) with the Administration's U.S. Climate Change Research Initiative (CCRI). CCSP budget requests are coordinated through interagency research working groups and other mechanisms, but ultimate budget accountability resides with the participating departments and agencies. As a result of its interagency composition, activities of CCSP participating agencies are funded by Congress through nine of the 13 annual Appropriations bills.

The following tables summarize the CCSP budget:

- Tables 1 and 2 show the CCSP FY 2007-2009 budget aligned by CCSP goal.
- Table 3 shows the CCSP FY 2007-2009 budget by agency, with USGCRP and CCRI budgets listed separately and also combined in a single CCSP total.
- Table 4 shows the USGCRP FY 2007-2009 budget by CCSP research element.
- Table 5 shows the FY 2007-2009 CCRI budget.
- Subsequent tables show, for each CCSP participating agency, the FY 2007-2009 budget for both USGCRP and CCRI activities.

TABLE 1. FY 2007-2009 CLIMATE CHANGE SCIENCE PROGRAM BUDGET BY GOAL AND FOCUS AREA

Focus Area	Description (from <i>CCSP Strategic Plan</i>) ¹	Budgets (\$M) ²			Agencies
		FY 2007	FY 2008 Estimate	FY 2009 Request	
Goal 1 Improve knowledge of the Earth's past and present climate and environment, including its natural variability, and improve understanding of the causes of observed variability and changes					
Focus 1.1	Better understand natural long-term cycles in climate [e.g., Pacific Decadal Variability (PDV), North Atlantic Oscillation (NAO)]	39.6	43.6	47.3	DOC, DOE, DOI, NASA, NSF
Focus 1.2	Improve and harness the capability to forecast El Niño-La Niña and other seasonal-to-interannual cycles of variability	37.0	35.4	37.1	DOC, DOE, DOI, NASA, NSF
Focus 1.3	Sharpen understanding of climate extremes through improved observations, analysis, and modeling, and determine whether any changes in their frequency or intensity lie outside the range of natural variability	35.8	37.0	42.0	DOC, DOE, DOI, NASA, NSF
Focus 1.4	Increase confidence in the understanding of how and why climate has changed	38.4	39.2	43.8	DOE, DOI, NASA, NSF, SI
Focus 1.5	Expand observations and data/information system capabilities	173.7	191.1	240.4	DOC, DOE, DOI, NASA, NSF, SI
GOAL 1 TOTAL		324.5	346.3	410.6	
Goal 2 Improve quantification of the forces bringing about changes in the Earth's climate and related systems					
Focus 2.1	Reduce uncertainties about the sources and sinks of greenhouse gases, emissions of aerosols and their precursors, and their climate effects	94.1	96.2	103.9	DOC, DOE, DOI, DOT, NASA, NSF
Focus 2.2	Monitor the recovery of the ozone layer and improve the understanding of the interactions of climate change, ozone depletion, tropospheric pollution, and other atmospheric issues	27.3	28.1	30.8	USDA, DOE, NASA
Focus 2.3	Increase knowledge of the interactions among emissions, long-range atmospheric transport, and transformations of atmospheric pollutants, and their response to air quality management strategies	39.1	40.4	43.0	NASA, NSF

¹ See Chapter 2 of the *Strategic Plan for the U.S. Climate Change Science Program* for a detailed discussion.

² Any minor discrepancies within this table and between this table and others are due to rounding.

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TABLE 1 (CONTINUED)

Focus Area	Description (from <i>CCSP Strategic Plan</i>) ¹	Budgets (\$M) ²			Agencies
		FY 2007	FY 2008 Estimate	FY 2009 Request	
Goal 2 (continued)					
Focus 2.4	Develop information on the carbon cycle, land cover and use, and biological/ecological processes by helping to quantify net emissions of carbon dioxide, methane, and other greenhouse gases, thereby improving the evaluation of carbon sequestration strategies and alternative response options	127.6	132.0	134.2	USDA, DOC, DOE, DOI, NASA, NSF, SI
Focus 2.5	Improve capabilities to develop and apply emissions and related scenarios for conducting “if..., then...” analyses in cooperation with CCTP	3.0	3.0	3.0	DOE
GOAL 2 TOTAL		291.0	299.6	314.8	
Goal 3 Reduce uncertainty in projections of how the Earth’s climate and related systems may change in the future					
Focus 3.1	Improve characterization of the circulation of the atmosphere and oceans and their interactions through fluxes of energy and materials	37.6	38.5	44.4	DOC, DOE, DOI, NASA, NSF
Focus 3.2	Improve understanding of key “feedbacks” including changes in the amount and distribution of water vapor, extent of ice and the Earth’s reflectivity, cloud properties, and biological and ecological systems	66.0	66.8	69.4	DOE, DOI, NASA, NSF
Focus 3.3	Increase understanding of the conditions that could give rise to events such as rapid changes in ocean circulation due to changes in temperature and salinity gradients	7.5	11.8	12.6	DOE, DOI, NASA, NSF
Focus 3.4	Accelerate incorporation of improved knowledge of processes and feedbacks into climate models to reduce uncertainty in projections of climate sensitivity, changes in climate, and related conditions such as sea level	84.1	89.8	103.0	DOC, DOE, NASA, NSF
Focus 3.5	Improve national capacity to develop and apply climate models	41.8	43.3	50.6	DOC, DOE, NASA, NSF
GOAL 3 TOTAL		236.9	250.1	279.8	

TABLE 1 (CONTINUED)

Focus Area	Description (from <i>CCSP Strategic Plan</i>) ¹	Budgets (\$M) ²			Agencies
		FY 2007	FY 2008 Estimate	FY 2009 Request	
Goal 4 Understand the sensitivity and adaptability of different natural and managed ecosystems and human systems to climate and related global changes					
Focus 4.1	Improve knowledge of the sensitivity of ecosystems and economic sectors to global climate variability and change	62.5	60.8	62.8	USDA, DOE, DOI, DOT, EPA, NASA, NSF, SI
Focus 4.2	Identify and provide scientific inputs for evaluating adaptation options, in cooperation with mission-oriented agencies and other resource managers	56.5	57.9	57.5	HHS, DOI, DOT, EPA, NSF
Focus 4.3	Improve understanding of how changes in ecosystems (including managed ecosystems such as croplands) and human infrastructure interact over long time periods	40.1	43.1	39.7	USDA, DOC, DOI, DOT, NASA, NSF, SI
GOAL 4 TOTAL		159.1	161.8	160.0	
Goal 5 Explore the uses and identify the limits of evolving knowledge to manage risks and opportunities related to climate variability and change					
Focus 5.1	Support informed public discussion of issues of particular importance to U.S. decisions by conducting research and providing scientific synthesis and assessment reports	57.9	52.2	52.8	USDA, DOI, EPA, NASA, NSF, SI
Focus 5.2	Support adaptive management and planning for resources and physical infrastructure sensitive to climate variability and change; build new partnerships with public and private sector entities that can benefit both research and decisionmaking	62.0	66.1	72.0	USDA, DOC, DOI, USAID, EPA, NASA, NSF
Focus 5.3	Support policymaking by conducting comparative analyses and evaluations of the socioeconomic and environmental consequences of response options	18.4	20.8	19.0	USDA, DOE, DOI, EPA, NASA, NSF, SI
GOAL 5 TOTAL		138.3	139.1	143.8	
CCSP PROGRAM TOTAL		1,149.8	1,197.0	1,309.0	

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**TABLE 2. FY 2007-2009 CLIMATE CHANGE SCIENCE PROGRAM
BUDGET BY GOAL AND PARTICIPATING AGENCY/DEPARTMENT**

[DISCRETIONARY BUDGET AUTHORITY IN \$M]

	Research											Res Subtotal	Obs ² Subtotal	TOTAL
	USDA	DOC ¹	DOE	HHS	DOI	DOT	USAID	EPA	NASA	NSF	SI			
FY 2009 Request														
Goal 1	0.0	217.7	47.3	0.0	11.9	0.0	0.0	0.0	80.8	51.8	1.1	410.6	399.6	810.2
Goal 2	19.6	41.6	33.1	0.0	4.5	1.9	0.0	0.0	149.6	64.1	0.4	314.8	127.9	442.7
Goal 3	0.0	46.5	50.4	0.0	1.2	0.0	0.0	0.0	127.0	54.7	0.0	279.8	187.3	467.1
Goal 4	16.8	2.0	13.1	46.8	12.2	0.0	0.0	3.6	21.3	41.0	3.2	160.0	53.4	213.4
Goal 5	23.9	16.8	2.0	0.0	1.6	0.0	20.0	12.7	56.8	9.0	1.0	143.8	0.0	143.8
TOTAL	60.3	324.6	145.9	46.8	31.4	1.9	20.0	16.3	435.5	220.6	5.7	1,309.0	768.2	2,077.2
FY 2008 Estimate														
Goal 1	0.0	162.0	46.4	0.0	12.0	0.0	0.0	0.0	75.3	49.5	1.1	346.3	341.1	687.4
Goal 2	19.3	38.7	32.2	0.0	5.3	0.5	0.0	0.0	143.2	60.0	0.4	299.6	119.7	419.3
Goal 3	0.0	46.1	34.8	0.0	1.3	0.0	0.0	0.0	119.2	48.7	0.0	250.1	163.6	413.7
Goal 4	18.5	4.7	13.1	46.8	12.3	0.0	0.0	4.4	20.8	38.0	3.2	161.8	41.8	203.6
Goal 5	26.7	14.8	2.0	0.0	2.6	0.0	14.0	15.2	53.8	9.0	1.0	139.1	0.0	139.1
TOTAL	64.5	266.3	128.5	46.8	33.5	0.5	14.0	19.6	412.3	205.3	5.7	1,197.0	666.2	1,863.2
FY 2007														
Goal 1	0.0	139.7	44.6	0.0	11.0	0.0	0.0	0.0	78.6	49.5	1.1	324.5	298.9	623.4
Goal 2	16.9	37.6	31.0	0.0	3.1	0.4	0.0	0.0	140.2	61.4	0.4	291.0	173.9	464.9
Goal 3	0.0	42.1	29.8	0.0	1.4	0.0	0.0	0.0	114.9	48.7	0.0	236.9	163.9	400.8
Goal 4	17.9	3.8	17.8	46.8	9.5	0.4	0.0	2.7	19.0	38.0	3.2	159.1	36.9	196.0
Goal 5	26.2	12.5	2.0	0.0	1.5	0.0	14.0	14.3	57.8	9.0	1.0	138.3	0.0	138.3
TOTAL	61.0	235.7	125.2	46.8	26.5	0.8	14.0	17.0	410.5	206.6	5.7	1,149.8	673.6	1,823.4

¹ The FY 2007 amount of \$236 million reflects an estimate of climate expenditures. The recently calculated actual expenditures in FY 2007 were \$265 million.

² NASA observing systems.

Note: Any minor discrepancies within this table and between this table and others are due to rounding.

**TABLE 3. CLIMATE CHANGE SCIENCE PROGRAM:
FY 2007-2009 BUDGET BY AGENCY**
[DISCRETIONARY BUDGET AUTHORITY IN \$M]

Agency	FY 2007			FY 2008 Estimate			FY 2009 Request		
	USGCRP	CCRI	CCSP	USGCRP	CCRI	CCSP	USGCRP	CCRI	CCSP
USDA	53	8	61	57	8	65	54	8	62
DOC ^{1,2,3,4}	190	46	236	222	44	266	281	44	325
DOE ⁵	101	25	126	103	25	128	121	25	146
HHS	47	0	47	47	0	47	47	0	47
DOI	27	0	27	34	0	34	31	0	31
DOT	0	1	1	0	1	1	0	2	2
USAID	0	14	14	0	14	14	6	14	20
EPA	16	0	16	20	0	20	16	0	16
NASA ⁶	376	35	411	378	34	412	400	35	436
NSF	182	25	207	180	25	205	196	25	221
SI	6	0	6	6	0	6	6	0	6
Scientific Research Total	998	154	1,152	1,047	151	1,198	1,158	153	1,312
NASA Space-Based Observations	580	94	674	626	40	666	734	34	769
CCSP Total⁷	1,577	248	1,825	1,673	191	1,864	1,892	188	2,080
President's Request									

Notes:
 1 NOAA previously reported its climate research activities to CCSP, which were included under its Office of Oceanic and Atmospheric Research (OAR) line office and the National Marine Fisheries Service (NMFS) line office starting in FY 2006. For FY 2008, NOAA made a decision to report activities for the NOAA climate strategic goal, as defined in the NOAA strategic plan (2005), to ensure consistent reporting and to provide the most accurate picture of its climate funding to date. The climate goal includes both research and operations funding under the following offices: OAR, NMFS, the National Weather Service, and the National Environmental Satellite, Data, and Information Service.
 2 Past reports have erroneously presented all of NOAA's CCSP funding in the Operations, Research, and Facilities (ORF) account. Climate-related activities have been and continue to be funded in both the ORF account and the Procurement, Acquisition, and Construction (PAC) account.
 3 DOC FY 2008 and FY 2009 funding includes new measurement and standards-related activities that NIST will undertake to support CCSP.
 4 The FY 2007 amount of \$236 million reflects an estimate of climate expenditures. The recently calculated actual expenditures in FY 2007 were \$265 million.
 5 The majority of the FY 2009 DOE increase is due to increased climate modeling efforts. Examples include testing new convection and cloud parameterization schemes, research on effects of improved initialization of coupled model components on decadal predictability of climate, and understanding the role of cryospheric processes in the climate system.
 6 The NASA climate change funding levels in this table are consistent with amounts reported in the President's proposed FY 2009 budget. This table does not reflect the revised accounting approach to be instituted in FY 2009 in response to FY 2008 Consolidated Appropriations Act direction.
 7 Operational space-based, surface, and *in situ* observing systems and programs are not included in the CCSP budget cross-cut, but contribute to achieving CCSP goals. Because DOD research activities are conducted for defense-related missions, they are not included in the CCSP budget cross-cut; however, related DOD research contributes to CCSP goals.
 * Any minor discrepancies within this table and between this table and others are due to rounding.

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**TABLE 4. CLIMATE CHANGE SCIENCE PROGRAM:
FY 2007–2009 USGCRP SCIENTIFIC RESEARCH BUDGET BY CCSP RESEARCH ELEMENT**
[DISCRETIONARY BUDGET AUTHORITY IN \$M]

Agency	Atmospheric Composition	Climate Variability	Carbon Cycle	Water Cycle	Ecosystems	Land Use	Human Contributions	TOTAL
FY 2009 USGCRP Research Elements								
USDA	20.9	–	12.4	4.6	14.8	0.1	–	52.8
DOC	18.2	223.3	14.1	10.0	2.1	–	12.8	280.5
DOE	13.3	82.5	11.0	–	13.5	–	2.0	122.3
HHS	–	–	–	–	–	–	46.8	46.8
DOI	–	7.0	2.5	6.7	7.5	6.7	1.0	31.4
USAID	–	–	–	–	–	–	6.0	6.0
EPA	7.4	–	–	3.7	3.7	–	1.7	16.5
NASA	83.0	83.3	49.1	96.1	40.6	19.4	28.4	399.9
NSF	22.8	88.9	32.2	16.4	21.3	2.8	11.2	195.6
SI	0.1	1.3	0.3	–	3.2	0.8	–	5.7
TOTAL	165.7	486.3	121.6	137.5	106.7	29.8	109.9	1,157.5
FY 2008 USGCRP Research Elements								
USDA	21.8	–	12.8	5.6	15.7	0.3	–	56.2
DOC	15.9	170.2	13.8	9.9	1.5	–	10.8	222.1
DOE	12.9	65.4	10.8	–	13.4	–	2.0	104.5
HHS	–	–	–	–	–	–	46.8	46.8
DOI	–	6.9	3.5	8.1	7.5	6.6	1.0	33.6
EPA	8.8	–	–	4.4	4.4	–	2.0	19.6
NASA	78.0	79.1	47.6	89.5	39.8	19.8	24.5	378.3
NSF	20.7	78.4	30.2	16.4	20.5	2.8	11.2	180.2
SI	0.1	1.3	0.3	–	3.2	0.8	–	5.7
TOTAL	158.2	401.3	119.0	133.9	106.0	30.3	98.3	1,047.0
FY 2007 USGCRP Research Elements								
USDA	19.7	–	11.9	4.9	15.8	0.3	–	52.6
DOC	15.7	146.5	10.2	9.5	1.5	–	6.6	190.0
DOE	12.5	61.8	10.2	–	18.1	–	0.5	103.1
HHS	–	–	–	–	–	–	46.8	46.8
DOI	–	6.9	2.5	3.2	6.3	6.6	1.0	26.5
EPA	6.6	–	–	0.5	3.8	–	6.1	17.0
NASA	77.9	79.9	45.2	83.8	39.9	20.4	28.4	375.5
NSF	22.1	78.4	30.2	16.4	20.5	2.8	11.2	181.6
SI	0.1	1.3	0.3	–	3.2	0.8	–	5.7
TOTAL	154.6	374.8	110.5	118.3	109.1	30.9	100.6	998.8

Note: Any minor discrepancies within this table and between this table and others are due to rounding.

**TABLE 5. FY 2007-2009 BUDGET
FOR THE CLIMATE CHANGE RESEARCH INITIATIVE (CCRI)**

Agency	Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USDA	Carbon Cycle Research (ARS)	0.7	0.6	0.2
	Carbon Cycle Research (FS)	3.6	3.5	3.6
	Carbon Management Research	2.0	1.9	2.0
	Regional and Sectoral Impacts of Climate Change	1.0	1.0	0.6
	Carbon Inventory and Analysis	1.1	1.1	1.1
U.S. Department of Agriculture CCRI Total		8.4	8.1	7.5
DOC	Climate Variability and Change	39.2	38.4	38.4
	Carbon Cycle	6.5	5.8	5.9
Department of Commerce CCRI Total		45.7	44.2	44.3
DOE	Atmospheric Radiation Measurement Program	5.6	5.6	5.6
	CCRI Climate Modeling	9.7	12.2	12.2
	CCRI Carbon Cycle	2.4	2.9	2.9
	CCRI Integrated Assessment	4.6	3.0	3.0
Department of Energy CCRI Total		22.3	23.7	23.7
DOT	Partnership for Air Transportation Noise and Emissions Reduction	0.4	0.3	0.3
	NextGen – Aviation Climate Change Research Initiative	0.0	0.5	1.5
	Aviation Environment Design Tool (AEDT) and System for Assessing Global Emissions (SAGE)	0.0	0.3	0.2
	DOT-wide Climate Change Center ¹	0.4	0.0	0.0
Department of Transportation CCRI Total		0.8	1.0	2.0
USAID	Famine Early Warning System Network (FEWS NET)	14.0	14.0	14.0
U.S. Agency for International Development CCRI Total		14.0	14.0	14.0
NASA	Atmospheric Composition	2.6	2.7	2.7
Science	Climate Variability	4.8	4.9	4.9
	Carbon Cycle	6.5	6.6	6.6
	Water Cycle	6.4	6.4	6.4
	Terrestrial and Marine Ecosystems	2.1	2.2	2.1
	Land-Cover/Land-Use Change	1.1	1.2	1.1
	Human Contributions and Responses	11.6	9.9	11.6
NASA	Atmospheric Composition	46.8	20.1	17.1
Space	Climate Variability	46.8	20.1	17.1
National Aeronautics and Space Administration CCRI Total²		128.7	74.1	69.6
NSF	Carbon Fluxes and Cycle	10.0	10.0	10.0
	Human Dimensions of Climate Change	5.0	5.0	5.0
	Modeling Strategy	10.0	10.0	10.0
National Science Foundation CCRI Total		25.0	25.0	25.0
Total Climate Change Research Initiative President's Request		244.9	190.1	186.1

¹ No line item exists for this expenditure. Modal agencies make voluntary contributions to the Center.

² NASA funding decreases for CCRI from FY 2007 to FY 2009 are primarily due to the planned ramp-down of resources for the Glory mission, a major contributor to NASA CCRI funding, which is completing development in preparation for a December 2008 (FY 2009) launch.

Note: Any minor discrepancies within this table and between this table and others are due to rounding.

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U.S. DEPARTMENT OF AGRICULTURE

Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP			
Global Carbon Cycle	11.9	12.8	12.4
Agricultural Research Service	3.7	3.7	3.1
Cooperative State Research, Education, and Extension Service	0.9	0.9	2.0
Economic Research Service	0.1	0.1	0.1
Forest Service	7.3	8.1	7.3
Water Cycle	4.9	5.6	4.6
Agricultural Research Service	3.5	3.5	3.2
Cooperative State Research, Education, and Extension Service ¹	0.0	0.0	0.0
Forest Service	1.5	2.2	1.5
Land-Use / Land-Cover Change	0.3	0.3	0.1
Cooperative State Research, Education, and Extension Service	0.3	0.3	0.1
Understanding Atmospheric Composition and Chemistry	19.1	19.6	17.9
Agricultural Research Service	19.1	19.6	17.9
Understanding Ecosystems Changes	15.8	15.7	14.8
Agricultural Research Service	11.8	11.0	10.7
Cooperative State Research, Education, and Extension Service	0.4	0.4	0.5
Forest Service	3.6	4.2	3.6
Understanding the Human Dimensions of Climate Change	0.0	0.0	0.0
Cooperative State Research, Education, and Extension Service ²	0.0	0.0	0.0
Support the UV-B Monitoring Network	0.0	1.6	2.4
Cooperative State Research, Education, and Extension Service	0.0	1.6	2.4
Other National Research Initiative	0.6	0.6	0.5
Cooperative State Research, Education, and Extension Service	0.6	0.6	0.5
USGCRP TOTAL	52.7	56.3	52.9
CCRI			
Carbon Cycle Research (ARS)	0.7	0.6	0.2
Carbon Cycle Research (FS)	3.6	3.5	3.6
Carbon Management Research	2.0	1.9	2.0
Regional and Sectoral Impacts of Climate Change	1.0	1.0	0.6
Carbon Inventory and Analysis	1.1	1.1	1.1
CCRI TOTAL	8.3	8.1	7.4
Department of Agriculture Total President's Request	60.9	64.4	60.3

¹ FY 2009 request for the USGCRP Water Cycle element within CSREES was \$9,000.

² FY 2007 and FY 2008 amounts for the USGCRP Human Dimensions element within CSREES were \$39,000.



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, Department of Agriculture CCSP activities are funded under Title I—Agricultural Programs, within the ARS, CSREES Research and Education Activities, and ERS accounts; and under Title II—Conservation Programs, within the NRCS Conservation Operations account. Also in Appropriations Committee reports, U.S. Department of Agriculture CCSP activities are funded in the USDA FS section under Title II—Related Agencies, within the FS Forest Research account.

DEPARTMENT OF COMMERCE

DOC	Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP				
NOAA	Laboratories and Cooperative Institutes	42.6	46.5	44.4
NOAA	Competitive Research Program	70.6	85.8	90.5
NOAA	Climate Data and Information	4.4	7.6	8.3
NOAA	Climate Operations	0.9	0.5	0.9
NOAA	Climate Regimes and Ecosystem Productivity	1.5	1.5	2.1
NOAA	Operational Climate Programs	70.1	80.0	129.0
NIST	Measurements and Standards for the CCSP	0.0	0.2	5.2
USGCRP TOTAL		190.1	222.1	280.4
CCRI				
NOAA	Competitive Research Program	45.7	44.2	44.2
CCRI TOTAL		45.7	44.2	44.2
Department of Commerce Total		235.8	266.3	
President's Request				324.6

Notes:

- 1) Starting in FY 2006, funding to DOC/NOAA's Laboratories was included as part of DOC/NOAA CCSP activities. This is a result of the evolution of NOAA's role in CCSP.
- 2) Prior to 2008, DOC/NOAA reported its climate research activities under its Office of Oceanic and Atmospheric Research (OAR) line office and the National Marine Fisheries Service (NMFS) line office. For FY 2008 and beyond, NOAA began reporting activities for the NOAA climate strategic goal, as defined in the NOAA Strategic Plan (2005), to ensure consistent reporting and to provide the most accurate picture of its climate funding to date. The climate goal includes both research and operations funding under the following offices: OAR, NMFS, the National Weather Service, and the National Environmental Satellite, Data, and Information Service (NESDIS).
- 3) Past reports have erroneously presented all of DOC/NOAA's CCSP funding in the Operations, Research, and Facilities (ORF) account. Climate-related activities have been and continue to be funded in both the ORF account and the Procurement, Acquisition, and Construction (PAC) account.
- 4) Beginning in FY 2008, DOC includes funding for new measurement and standards-related activities that DOC/NIST undertakes to support CCSP.
- 5) In addition to reporting funding for NOAA's climate strategic goal for FY 2009, DOC is also reporting \$74M for climate satellite sensors funded under the NESDIS PAC account.
- 6) The FY 2007 amount of \$236 million reflects an estimate of climate expenditures. The recently calculated actual expenditures in FY 2007 were \$265 million.



Mapping of Budget Request to Appropriations Legislation. In Appropriations Committee reports, funding for National Oceanic and Atmospheric Administration CCSP activities is specified in the Laboratories and Cooperative Institutes, Competitive Research Programs, Climate Operations, and Climate Data and Information lines of the Oceanic and Atmospheric Research budget; in the Climate Regimes and Ecosystem Productivity line of the National Marine Fisheries Service budget; the Data Centers and Information Services line of the National Environmental Satellite, Data, and Information Service (NESDIS) budget; and the Local Warnings and Forecasts and Central Forecast Guidance lines of the National Weather Service (NWS) budget within NOAA's Operations, Research, and Facilities account. In addition, a portion of NOAA's climate funding is found within the Procurement, Acquisition, and Construction account for NESDIS and NWS. Funding for National Institute of Standards and Technology CCSP activities is specified in the Scientific and Technical Research and Services account.

Appendix B

DEPARTMENT OF ENERGY

Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP			
Climate Change Modeling	15.6	18.8	33.2
Climate Forcing	68.1	69.4	72.6
Climate Change Response	19.6	16.4	16.4
USGCRP TOTAL	103.3	104.6	122.2
CCRI			
Atmospheric Radiation Measurement Program	5.6	5.6	5.6
Climate Modeling	9.7	12.2	12.2
Carbon Cycle	2.4	2.9	2.9
Integrated Assessment Research	4.6	3.0	3.0
CCRI TOTAL	22.3	23.7	23.7
Department of Energy Total President's Request	125.6	128.3	145.9



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, Department of Energy CCSP activities are funded under Title III—Department of Energy, within the Energy Supply, Research, and Development Activities account. Also in these Appropriations Committee reports, funding for Department of Energy CCSP activities is included as part of the appropriation for Biological and Environmental Research.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

HHS	Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP				
NCI	Health Effects of UV Radiation	31.4	31.4	31.4
NIEHS	Health Effects of UV Radiation	13.7	13.7	13.7
NIAMS	Health Effects of UV Radiation	1.7	1.7	1.7
USGCRP TOTAL		46.8	46.8	46.8
Department of Health and Human Services Total		46.8	46.8	
President's Request				46.8



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, Department of Health and Human Services CCSP activities are funded under the National Institutes of Health section of Title II—Department of Health and Human Services.

DEPARTMENT OF THE INTERIOR

DOI	Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP				
USGS	Earth Surface Dynamics	10.5	10.3	10.5
USGS	Hydroclimatology and Water, Energy, and Biogeochemical Budgets	3.2	3.1	3.1
USGS	Land Characterization Research and Applications	2.9	2.9	2.9
USGS	Satellite Data Management and Dissemination	3.7	3.7	3.7
USGS	Terrestrial and Coastal Ecosystem Changes	6.2	6.1	6.2
USGS	Global Change Initiative	0.0	7.4	5.0
USGCRP TOTAL		26.5	33.5	31.4
Department of the Interior Total		26.5	33.5	
President's Request				31.4



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, Department of the Interior CCSP activities are funded under Title I—Department of the Interior. Funding for U.S. Geological Survey CCSP programs is included within the USGS Survey, Investigations, and Research account.

Appendix B

DEPARTMENT OF TRANSPORTATION

Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
CCRI			
Partnership for Air Transportation Noise and Emissions Reduction (PARTNER)	0.4	0.25	0.3
NextGen- Aviation Climate Change Research Initiative	0.0	0.5	1.5
Aviation Environmental Design Tool (AEDT) and System for Assessing Global Emissions (SAGE)	0.0	0.25	0.2
DOT-wide Climate Change Center	0.4	0.0	0.0
CCRI TOTAL	0.8	1.0	1.9
Department of Transportation Total President's Request	0.8	1.0	1.9

Note:

- 1) Modal administrations within the Department of Transportation contributed financially to the DOT Center for Climate Change and Environmental Forecasting in amounts less than \$100,000.



Mapping of Budget Request to Appropriations Legislation. Since 2000, the Department's climate change research has been funded by contributions from eight of DOT's operating administrations and the Office of the Secretary.

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP			
Climate Change and Energy Security Initiative	0.0	0.0	6.0
USGCRP TOTAL	0.0	0.0	6.0
CCRI			
Famine Early Warning System Network (FEWS NET)	14.0	14.0	14.0
CCRI TOTAL	14.0	14.0	14.0
U.S. Agency for International Development Total President's Request	14.0	14.0	20.0

Note:

1) The CCRI FEWS NET amounts for FY 2008 and FY 2009 of \$14 million have been recently revised to reflect the actual appropriation of \$12 million in FY 2008 and revised request of \$13.4 million in FY 2009.



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, U.S. Agency for International Development CCSP activities are funded under Title II—Bilateral Economic Assistance: United States Agency for International Development.

ENVIRONMENTAL PROTECTION AGENCY

Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP			
Air Quality Research and Assessment	6.6	8.8	7.4
Ecosystem Research and Assessment	3.8	–	–
Human Health Research and Assessment	1.7	–	–
Water Quality Research and Assessment	0.5	–	–
Research and Assessments of the Integrated Effects of Global Change	4.4	2.0	1.7
Water Quality / Aquatic Ecosystems Research and Assessment	–	8.8	7.3
USGCRP TOTAL	17.0	19.6	16.4
Environmental Protection Agency Total President's Request	17.0	19.6	16.4



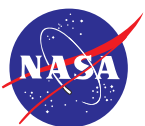
Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, Environmental Protection Agency CCSP activities are funded under the EPA section of Title III—Independent Agencies, within the Science and Technology account. Appropriations Committee report language may specify more directly the funding for global change research.

Appendix B

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP			
Atmospheric Composition	77.9	78.0	83.0
Climate Variability	79.9	79.1	83.3
Carbon Cycle	45.2	47.6	49.1
Water Cycle	83.8	89.5	96.1
Ecosystems	39.9	39.8	40.6
Land-Cover / Land-Use Change	20.4	19.8	19.4
Human Contributions and Responses	28.4	24.5	28.4
USGCRP Scientific Research Sub-Total	375.5	378.3	400.1
Atmospheric Composition	52.7	54.6	64.2
Climate Variability	185.8	166.0	148.2
Carbon Cycle	142.1	113.5	130.4
Water Cycle	113.7	177.4	256.4
Ecosystems	42.2	52.6	62.0
Land-Cover / Land-Use Change	43.5	61.8	73.2
USGCRP Space-Based Observations Sub-Total	580.0	625.9	734.4
USGCRP TOTAL	955.5	1,004.2	1,134.5
CCRI			
Atmospheric Composition	2.6	2.7	2.7
Climate Variability	4.8	4.9	4.9
Carbon Cycle	6.5	6.6	6.6
Water Cycle	6.4	6.4	6.4
Ecosystems	2.1	2.2	2.1
Land-Cover / Land-Use Change	1.1	1.2	1.1
Human Contributions and Responses	11.6	9.9	11.6
CCRI Scientific Research Sub-Total	35.2	33.9	35.4
Atmospheric Composition	46.8	20.1	17.1
Climate Variability	46.8	20.1	17.1
CCRI Space-Based Observations Sub-Total	93.6	40.3	34.1
CCRI TOTAL¹	128.7	74.2	69.5
National Aeronautics and Space Administration Total	1,084.2	1,078.4	
President's Request			1,204.0

¹ NASA funding decreases for CCRI from FY 2007 to FY 2009 are primarily due to the planned ramp-down of resources for the Glory mission, a major contributor to NASA CCRI funding, which is completing development in preparation for a December 2008 (FY 2009) launch.



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, National Aeronautics and Space Administration CCSP activities are funded under NASA Earth science and technology programs within Title III—Independent Agencies, as part of the Science, Aeronautics, and Technology account.

NATIONAL SCIENCE FOUNDATION

Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP			
Atmospheric Composition	22.1	20.7	22.8
Climate Variability and Change	78.4	78.4	88.9
Carbon Cycle	30.2	30.2	32.2
Water Cycle	16.4	16.4	16.4
Terrestrial and Marine Ecosystems	20.5	20.5	21.3
Land Use / Land Cover	2.8	2.8	2.8
Human Dimensions of Climate Change ¹	11.2	11.2	11.2
USGCRP TOTAL	181.6	180.3	195.6
CCRI			
Carbon Fluxes and Cycle	10.0	10.0	10.0
Human Dimensions of Climate Change	5.0	5.0	5.0
Modeling Strategy	10.0	10.0	10.0
CCRI TOTAL	25.0	25.0	25.0
National Science Foundation Total	206.6	205.3	
President's Request			220.6

¹ NSF characterizes funding for the CCSP program "Human Dimensions of Climate Change" as "Human Contributions and Responses to Climate Change."



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, National Science Foundation CCSP activities are supported under the NSF section of Title III—Independent Agencies within the NSF Research and Related Expenses account.

Appendix B

SMITHSONIAN INSTITUTION

SI	Program Title	FY 2007	FY 2008 Estimate	FY 2009 Request
USGCRP				
NMNH	Archaeobiology Program (Human Ecology History)	0.3	0.3	0.3
NMNH	Paleoecological Effects of Climate Change, including Evolution of Terrestrial Ecosystems	0.9	0.9	0.9
NMNH	Global Volcanism Program	0.2	0.2	0.2
NMNH	Human Origins Program (Human Ecological History)	0.3	0.3	0.3
NMNH	Nile Delta Subsidence / Sea-Level Rise	0.2	0.2	0.2
NMNH	Tropical Biodiversity Program	0.6	0.6	0.6
SERC	Ecological Effects of Ultraviolet Radiation	0.2	0.2	0.2
SERC	Effects of Increasing Atmospheric CO ₂ on Ecosystems	0.3	0.3	0.3
STRI	Temperate and Tropical Forest Canopy Biology	0.4	0.4	0.4
STRI	Tropical Forest Science	0.9	0.9	0.9
STRI	Biodynamics of Forest Fragments	0.1	0.1	0.1
STRI	Tropical Agroforestry	0.2	0.2	0.2
NZP	Migratory Birds	0.3	0.3	0.3
NZP	Predicting Species Responses	0.7	0.7	0.7
NZP	Monitoring and Assessment of Biodiversity (MAB) Program	0.1	0.1	0.1
USGCRP TOTAL		5.7	5.7	5.7
Smithsonian Institution Total President's Request		5.7	5.7	5.7



Mapping of Budget Request to Appropriations Legislation. In the Appropriations Committee reports, Smithsonian Institution CCSP activities are funded in the Smithsonian section of Title II—Related Agencies, within the Salaries and Expenses account. Appropriations Committee reports specify funding for a Sciences line item component of this account, which includes CCSP programs.