

The U.S. Climate Change Science Program

IMPLEMENTING THE STRATEGIC PLAN — THE NEXT STAGE

During FY 2004 and FY 2005 the CCSP is moving forward to implement the Strategic Plan. This section discusses CCSP management and implementation mechanisms, and criteria for setting budget and program priorities. Highlights of FY 2004 and FY 2005 program plans for each of the CCSP research elements and for each of the CCSP participating agencies are presented in greater detail in later sections of this report.

CCSP Management and Implementation Mechanisms

Several circumstances define the unique management environment of the Climate Change Science Program. Fundamentally, the CCSP integrates U.S. Government-supported research on climate and global change, as conducted and sponsored by 13 departments and agencies:

- Department of Agriculture (USDA)
- Department of Commerce / National Oceanic and Atmospheric Administration (DOC/NOAA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Department of Health and Human Services (HHS)
- Department of the Interior / U.S. Geological Survey (DOI/USGS)
- 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).

The Office of Science and Technology Policy (OSTP), the Council on Environmental Quality (CEQ), the National Economic Council (NEC), and the Office of Management and Budget (OMB) provide oversight. Planning and implementation must be coordinated across the participating departments and agencies because the capabilities required for comprehensive scientific inquiries and synthesis extend beyond the mission, resources, and expertise of any single agency.

As a U.S. Government program, CCSP budget requests are implemented within the context of the Federal budget cycle. Budget requests are coordinated through

interagency research working groups and other mechanisms, but ultimate budget accountability resides with the participating agencies and departments. As a result of its interagency composition, activities in the CCSP budget are funded by Congress through nine of the 13 annual Appropriations bills. Congressional oversight also is carried out by a number of authorizing committees, making the relationship between CCSP budgeting and the appropriations and oversight process complex.

With 14 years of experience, the U.S. Global Change Research Program has developed a solid foundation for managing a large-scale interagency research program on complex climate and global change issues.

Management of the CCSP involves five mechanisms:

- Executive direction by a cabinet-based management structure, including priority setting, management review, and accountability
- Program implementation by CCSP participating agencies
- Coordinated planning and program implementation through interagency working groups
- External interactions for guidance, evaluation, and feedback
- Coordination and management support from an interagency office accountable to the CCSP interagency governing committee.

CLIMATE CHANGE SCIENCE AND TECHNOLOGY INTEGRATION

In February 2002, the President created a new Cabinet-level management structure—the Committee on Climate Change Science and Technology Integration—to oversee the more than \$3 billion annual investment in the combined Federal climate change research and technology development programs. The new management structure places accountability and leadership for the science and technology programs in the relevant cabinet departments. The relevant research continues to be coordinated through the National Science and Technology Council in accordance with the Global Change Research Act of 1990.

At the highest level, this structure includes the Executive Office of the President, with policy review provided by a combined National Security Council (NSC), Domestic Policy Council (DPC), and National Economic Council (NEC) panel. The Committee on Climate Change Science and Technology Integration (CCCSTI), consisting of cabinet secretaries and agency heads, was developed to provide management oversight to the Federal climate change science and technology programs. The Interagency Working Group on Climate Change Science and Technology (IWGCCST) reports to the CCCSTI and consists of the Deputy/Under Secretaries (or the counterparts of these positions in non-cabinet agencies and offices). The Working Group provides oversight for both the CCSP and the CCTP (which develops and reviews climate technology programs within the U.S. Government), and makes recommendations to the CCCSTI about funding and program allocations, in order to implement a coordinated climate change science and technology program that will better support policy development.

Under the new management structure, the CCSP integrates research on global climate change conducted and sponsored by the Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, the Interior, State, and Transportation, together with the Environmental Protection Agency, the National Aeronautics and Space Administration, the National Science Foundation, the Agency for International Development, and the Smithsonian Institution. The Office of Science and Technology Policy, the Council on Environmental Quality, the National Economic Council, and the Office of Management and Budget also participate. The principal areas of focus for the CCSP agencies are summarized in an Appendix to this report.



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Interactions among those responsible for these five mechanisms are critical for improving the scientific planning, the effectiveness of interagency management, and the focus of climate and global change research to support governmental and nongovernmental needs. The CCSP also will employ guidance from the President's Management agenda to strengthen the implementation of this plan.

Chapter 16 of the *Strategic Plan for the U.S. Climate Change Science Program* contains a more detailed discussion of program management issues.

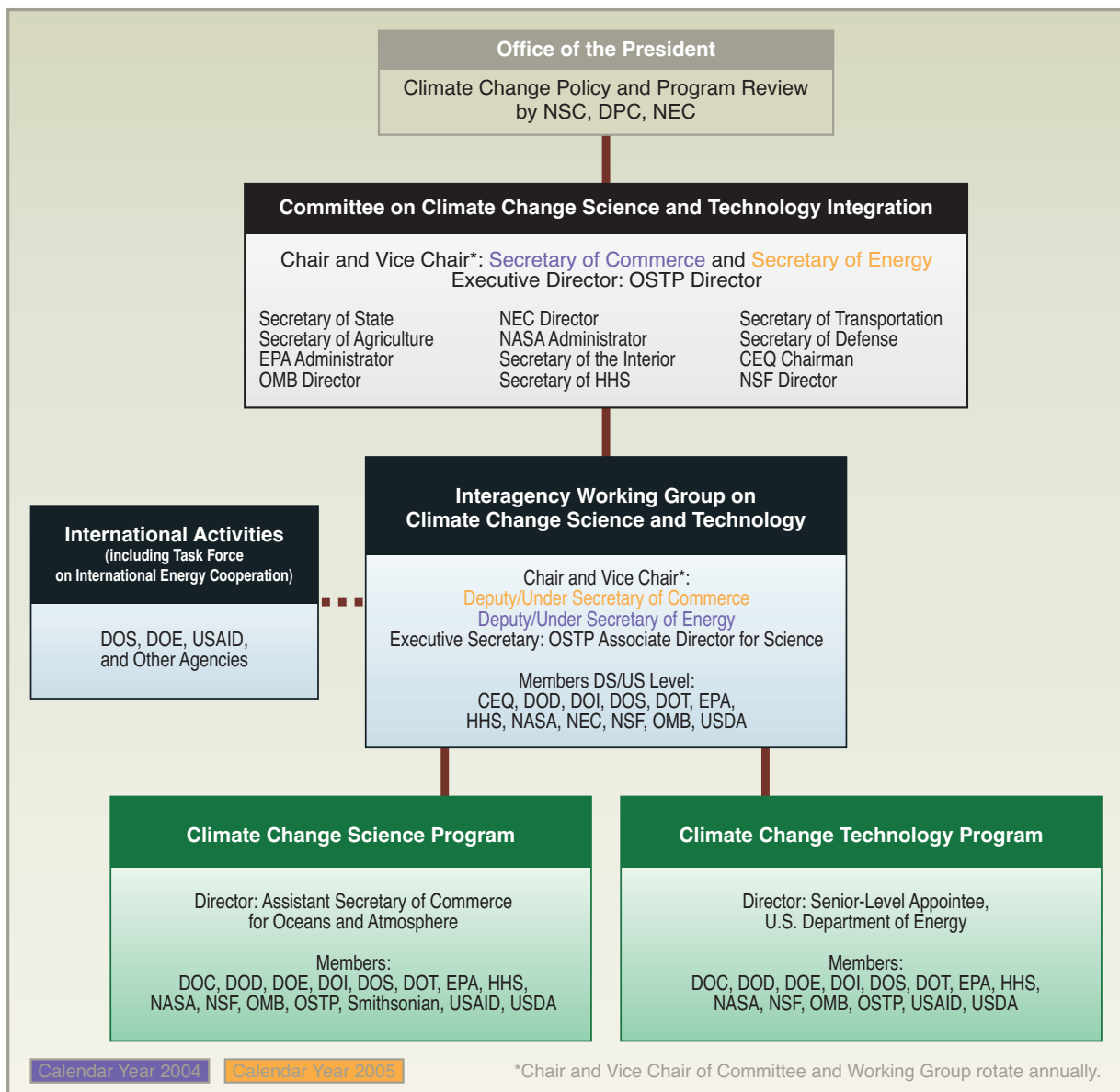


Figure 3: Climate change science and technology integration management structure.

Executive Direction by the Cabinet-Based Management Structure

The cabinet-level management structure instituted by the President in 2002 helps to focus efforts addressing the challenges of improving science-based information to manage the risks and opportunities of variability and change in climate and related systems during the coming decade. Through this structure, the CCSP also coordinates with the Climate Change Technology Program to address issues at the intersection of science and technology, such as evaluating approaches to sequestration, monitoring of anthropogenic greenhouse gas emissions, and energy technology development and market penetration scenarios.

Membership on CCSP's interagency governing body, which is chaired by the CCSP Director (a Department of Commerce appointee), is joint with the National Science and Technology Council, Committee on Environment and Natural Resources, Subcommittee on Global Change Research (SGCR)—the interagency subcommittee that coordinates the USGCRP. Its membership includes representatives from agencies that have mission responsibilities and/or funding in climate and global change research. The USGCRP and CCRI are integrated within the CCSP and responsibility for compliance with the requirements of the Global Change Research Act of 1990—including its provisions for annual reporting of findings and near-term plans, scientific reviews by the National Academy of Sciences/National Research Council, and periodic publication of a strategic plan for the program—rests with the CCSP's interagency governing body.

The CCSP interagency governing body provides overall management direction and is responsible for ensuring the development and implementation of an integrated interagency program. It oversees and directs all aspects of the program, including setting top-level goals for the program and determining what products will be developed and produced to meet those goals.

Program Implementation by CCSP Agencies

The goals and objectives of the CCSP and the plans designed by interagency working groups are carried out by the participating agencies, either individually or collaboratively. Each agency has its respective mission, capabilities, and appropriations, on the basis of which it commits to conduct research, make observations, run models, and generate products that contribute to CCSP objectives. Agency programs are aligned with CCSP implementation strategies by program managers who serve as chairs and members of interagency working groups.



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Coordinated Planning and Implementation through Interagency Working Groups

At the implementation level, the CCSP draws on the strengths of many agencies and departments. A significant degree of coordination is required to ensure that the research conducted and supported by individual agencies under the umbrella of the CCSP supports program scientific objectives and that developments are effectively and efficiently synthesized and transferred into operational and sustained societal benefits. Interagency working groups of program managers who have budget authority within their agencies to implement programs oversee development of integrated science and implementation plans for each of the working groups.

External Interactions for Guidance, Evaluation, and Feedback

The science community brings essential expertise to CCSP activities. The CCSP recognizes the need to develop and utilize a variety of processes and mechanisms to provide an open and transparent process, program evaluation, and feedback. Scientific input is, and will continue to be, sought from individuals in universities, Federal research agencies, nongovernmental organizations, and industry.

The CCSP will continue to ask relevant committees of the National Academy of Sciences/National Research Council to provide scientific guidance as appropriate. Since the inception of the USGCRP, the NRC has provided a wealth of valued advice in numerous commissioned reports. Currently, four NRC standing committees provide ongoing advisory support to the CCSP: the Climate Research Committee, the Committee on the Human Dimensions of Global Change, the Committee on Geophysical and Environmental Data, and the Coordinating Committee on Global Change. Two NRC studies for the CCSP are currently underway—on Radiative Forcing Effects on Climate (scheduled for release in December 2004), and on Metrics for Documenting Progress in Global Change Research.



Additional mechanisms to seek external scientific input—such as workshops, steering committees, *ad hoc* working groups, and review boards—will be employed as needed. The research community, in cooperation with users, will develop science plans for the research elements of the program. An example of a detailed science plan is the *U.S. Carbon Cycle Science Plan*, issued in 1999. This science plan was requested by several CCSP participating agencies and was developed by a working group that drew on the expertise of the U.S. carbon cycle science community.

Coordination and Management Support by an Interagency Office

The agencies participating in the CCSP fund and supervise an interagency office, the Climate Change Science Program Office, which fosters:

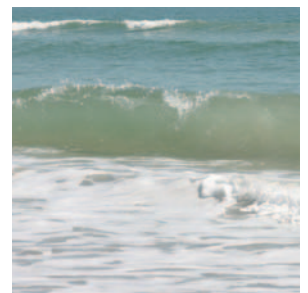
- Research coordination and integration
- Development, coordination, and integration of decision support resources
- Integration of agency activities in the areas of observing, monitoring, and data management
- Development and implementation of an interagency communications plan
- Secretariat support for the CCSP Director, CCSP Principals, and CCSP interagency working groups.



Setting Budget and Program Priorities

The CCSP uses a problem-driven rather than a disciplinary approach in setting priorities and sequencing investments, identifying for early action and support those projects and activities that meet the following agreed-upon criteria:

- *Scientific or technical quality:* The proposed work must be scientifically rigorous as determined by peer review. Implementation plans will include periodic review by external advisory groups (both researchers and users).
- *Relevance to reducing uncertainties and improving decision support tools in priority areas:* Programs must substantially address one or more of the CCSP goals. Programs must respond to needs for scientific information and enhance informed discussion by all relevant stakeholders.
- *Track record of consistently good past performance and identified metrics for evaluating future progress:* Programs addressing priorities with good track records of past performance will be favored for continued investment to the extent that time tables and metrics for evaluating future progress are provided. Proposed programs that identify clear milestones for periodic assessment and documentation of progress will be favorably considered for new investment.
- *Cost and value:* Research should address CCSP goals in a cost-effective way. Research should also be coordinated with and leverage other national and international efforts. Programs that provide value-added products to improve decision support resources will be favored.



The potential scope of climate change research, observations, and scientific synthesis is so large that the CCSP must clearly identify the highest priority activities for support.

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The research priorities of the CCSP are reviewed on an annual cycle through the budget process and reflect priority needs and scientific opportunities. While the CCSP Strategic Plan includes a decade-long strategy, it also establishes priorities for the near term consistent with the CCRI. These priorities are reflected in a focusing of resources and enhanced interagency coordination of ongoing and planned research that can best address major gaps in understanding of climate change. The CCSP Strategic Plan provides additional information on these priorities.

