

# IMPLEMENTING CLIMATE AND GLOBAL CHANGE RESEARCH



## A REVIEW OF THE FINAL U.S. CLIMATE CHANGE SCIENCE PROGRAM STRATEGIC PLAN

May 4, 2004

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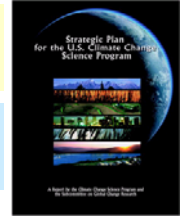
# Strategic Plan for the U.S. Climate Change Science Program

**Vision:** A nation and the global community empowered with the science-based knowledge to manage the risks and opportunities of change in the climate and related environmental systems.

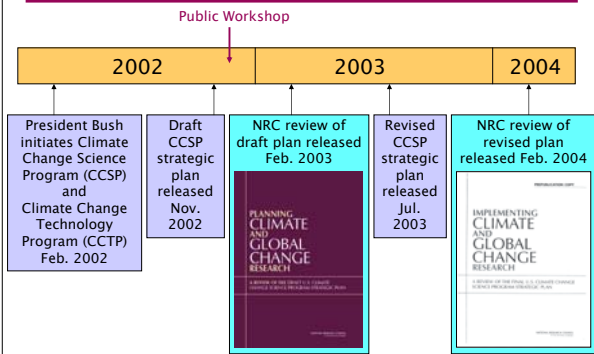
**Mission:** Facilitate the creation and application of knowledge of the Earth's global environment through research, observations, decision support, and communication.

### CCSP Goals:

- #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 change.
- #2 Improve quantification of the **forces bring about changes** in the Earth's climate and related systems.
- #3 Reduce uncertainty in **projections** of how the Earth's climate and related systems may change in the future.
- #4 Understand the **sensitivity and adaptability** of different natural and managed **ecosystems and human systems** to climate and related changes.
- #5 Explore the uses and identify the limits of evolving knowledge to **manage risks and opportunity** related to climate variability and change.



# CLIMATE CHANGE SCIENCE PROGRAM



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# COMMITTEE TO REVIEW THE U.S. CCSP STRATEGIC PLAN

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# OVERALL ASSESSMENT OF REVISED PLAN

- Much improved over its draft and responds well to National Academies and other input
- Articulates a guiding vision, is ambitious, and is broad in scope
- Encompasses activities in areas of long-standing importance and new or enhanced cross-disciplinary efforts
- Emphasizes decision support and links to stakeholders
- Calls for integration with the Climate Change Technology Program
- Includes strategic management framework that enables it to effectively guide climate and global change research

**The CCSP should implement the activities described in the strategic plan with urgency.**

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# ENSURING A BALANCED AND SOCIETALLY RELEVANT PROGRAM

- CCSP Goal 4 calls for understanding the sensitivity and adaptability of ecosystems and human systems to climate and related global changes
- Meeting this goal will require significant new efforts in areas not presently well supported by CCSP, including
  - Ecosystems
  - Impacts
  - Water cycle
  - Adaptation
  - Human dimensions
  - Mitigation
  - Economics
- Science plans and institutional support for these areas should be rapidly strengthened

**Accelerate efforts in previously underemphasized program elements.**

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## ENSURING A BALANCED AND SOCIETALLY RELEVANT PROGRAM

- CCSP Goal 5 calls for exploring the uses and identifying the limits of evolving knowledge to manage risks and opportunities related to climate variability and change.
- Treatment of decision support much improved in revised plan, but needs further development in implementation
  - Identifying stakeholders and the decisions they need to make
  - Supporting national and international policy decisions, as well as state, local, and regional adaptive management decisions
  - Supporting economics analysis of impacts and possible response options

**Further develop CCSP decision support activities.**

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## OBSERVATIONS AND MODELING

- Plan calls for major upgrades in global observing and climate modeling capabilities
- More comprehensive strategy needed for
  - Implementing, sustaining, and evolving the necessary observing system
  - Delivering model products, including climate projections, seasonal-to-interannual predictions, regional climate models, and projections of impacts
- Pursue opportunities for international collaborations

**Improve strategies for implementing and sustaining a global Earth observing system and for meeting climate modeling goals.**

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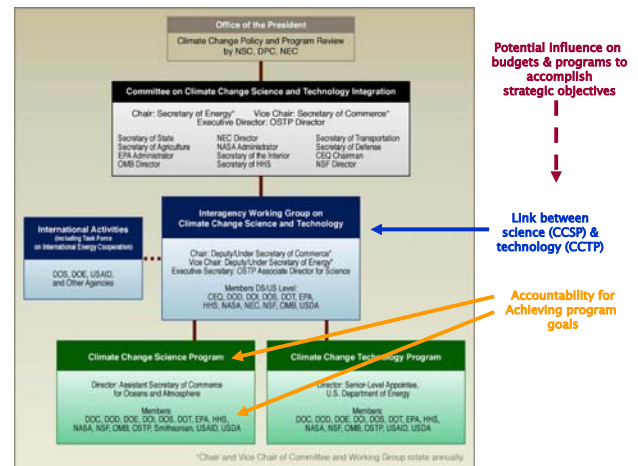
## LINKAGES BETWEEN CCSP AND CCTP

The CCSP plan describes joint activities of the CCSP and CCTP to develop improved scenarios of greenhouse gas emissions.

- Areas of CCSP–CCTP interaction that have been overlooked:
- evaluation of social and environmental impacts of potential new technologies
  - research on how mitigation or adaptation strategies developed by CCTP might produce climate or environmental impacts
  - poorly defined role of economic analyses in the coordination between CCSP and CCTP

**Establish a systematic mechanism for identifying and supporting research areas that fall at the CCSP–CCTP interface.**

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## EFFECTIVELY MANAGING THE PROGRAM

- CCSP management structure engages high-level officials who could ensure that the program has the necessary resources and could monitor progress toward program goals
- Attention should be paid to:
  - Clarifying and applying priorities and criteria in program selection and budgeting processes at participating agencies
  - Defining and applying metrics that indicate success in achieving goals

**Establish and institutionalize effective management processes that create accountability for meeting program goals.**

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- CCSP leadership should adopt an adaptive management approach for the program as a whole by:
  - carefully monitoring progress toward program goals
  - learning from experience,
  - adjusting plan, its timelines, and deliverables as needed
- Future strategic planning efforts should build upon the successes of this first one in terms of transparency and opportunities for stakeholder input

**Generate an updated strategic plan every three to five years.**

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## MAINTAINING SCIENTIFIC CREDIBILITY

- Involving high-level political leaders in CCSP management can create a real or perceived possibility that the program's priorities or scientific results could be influenced by political considerations
- Establishing a standing advisory body charged with independent oversight of the entire program will be more effective than using a number of ad hoc external mechanisms

***Establish a mechanism for independent oversight of the program as a whole.***

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## SYNTHESIS AND ASSESSMENT PRODUCTS

- The CCSP strategic plan calls for 21 synthesis and assessment products to be produced in the next four years
- The list of products appears somewhat ad hoc rather than a coherent portfolio of priority synthesis and assessment products

### ***The committee recommends:***

- The products be chosen to explicitly address the range of needs for decision makers and program management, as well as the broad scope specified in the Global Change Research Act
- The CCSP ensure the credibility of the products by producing them with independent oversight and review
- The CCSP ensure that the products are produced without unduly affecting the ability to conduct research and in coordination with the IPCC assessments

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## ADDRESSING CAPACITY NEEDS

- CCSP likely faces shortages in human and institutional capacity, especially in new or expanded areas
  - Human dimensions, economics, ecosystems, etc.
  - Decision support
  - 21 synthesis and assessment reports

***Carefully assess needs in capacity implied by the plan and address any gaps.***

- Given the expanded attention to decision support, communication with stakeholders, and interagency coordination, the CCSP Office will likely have more responsibilities

***Appropriately resource the CCSP Office to reflect its expanded roles.***

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## CONCLUDING REMARKS

- The CCSP represents a transition from the science-based GCRP to a program that employs *science in the service of societal objectives*
- The CCSP strategic plan is a *wholly adequate framework* to guide climate and global change research for the next decade
- The CCSP needs to *secure the financial resources* that will ensure the overall success of the plan
- The major challenge ahead is for *vigorous implementation*

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