

## DECISION SUPPORT: INFORMATION TO SUPPORT POLICY AND ADAPTIVE MANAGEMENT DECISIONMAKING

CCSP sponsors and conducts research that is ultimately related to policy and adaptive management decisionmaking. CCSP's decision-support approach is guided by several general principles, including:

- Early and continuing involvement of stakeholders
- Explicit treatment of uncertainties
- Transparent public review of analysis questions, methods, and draft results
- Evaluation of lessons learned from ongoing and prior decision-support and assessment activities.

### Synthesis and Assessment Products

CCSP is generating synthesis and assessment products to support informed discussion and decisionmaking on climate variability and change by policymakers, resource managers, stakeholders, the media, and the general public. More information about the products can be obtained from the CCSP web site <[www.climatescience.gov](http://www.climatescience.gov)>. These products will integrate research results focused on key issues and related questions frequently raised by decisionmakers. Current evaluations of the science can be used for informing public debate, policy development, and adaptive management decisions, and for defining and setting the future direction and priorities of the program. The

synthesis and assessment products constitute an important new form of topic-driven integration of U.S. global change assessment efforts. These CCSP products will be U.S. Government disseminations, subject to the provisions of the Information Quality Act (Section 515 of the Treasury and General Government Appropriations Act of 2001).



<b>SUMMARY OF SYNTHESIS AND ASSESSMENT PRODUCTS</b>	
<b>CCSP GOAL 1</b> Extend 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.	
1.1	Temperature trends in the lower atmosphere—steps for understanding and reconciling differences.
1.2	Past climate variability and change in the Arctic and at high latitudes.
1.3	Re-analyses of historical climate data for key atmospheric features. Implications for attribution of causes of observed change.
<b>CCSP GOAL 2</b> Improve quantification of the forces bringing about changes in the Earth’s climate and related systems.	
2.1	Updating scenarios of greenhouse gas emissions and concentrations, in collaboration with CCTP; review of integrated scenario development and application.
2.2	North American carbon budget and implications for the global carbon cycle.
2.3	Aerosol properties and their impacts on climate.
2.4	Trends in emissions of ozone-depleting substances, ozone layer recovery, and implications for ultraviolet radiation exposure and climate change.
<b>CCSP GOAL 3</b> Reduce uncertainty in projections of how the Earth’s climate and related systems may change in the future.	
3.1	Climate models and their uses and limitations, including sensitivity, feedbacks, and uncertainty analysis.
3.2	Climate projections for research and assessment based on emissions scenarios developed through CCTP.
3.3	Climate extremes including documentation of current extremes.
3.4	Risks of abrupt changes in global climate.
<b>CCSP GOAL 4</b> Understand the sensitivity and adaptability of different natural and managed ecosystems and human systems to climate and related global changes.	
4.1	Coastal elevation and sensitivity to sea-level rise.
4.2	State-of-knowledge of thresholds of change that could lead to discontinuities (sudden changes) in some ecosystems and climate-sensitive resources.
4.3	Analyses of the effects of global change on agriculture, biodiversity, land, and water resources.
4.4	Preliminary review of adaptation options for climate-sensitive ecosystems and resources.
4.5	Analyses of the effects of global change on energy production and use.
4.6	Analyses of the effects of global change on human health and welfare and human systems.
4.7	Within the transportation sector, a summary of climate change and variability sensitivities, potential impacts, and response options.
<b>CCSP GOAL 5</b> Explore the uses and identify the limits of evolving knowledge to manage risks and opportunities related to climate variability and change.	
5.1	Uses and limitations of observations, data, forecasts, and other projections in decision support for selected sectors and regions.
5.2	Best-practice approaches for characterizing, communicating, and incorporating scientific uncertainty in decisionmaking.
5.3	Decision-support experiments and evaluations using seasonal-to-interannual forecasts and observational data.

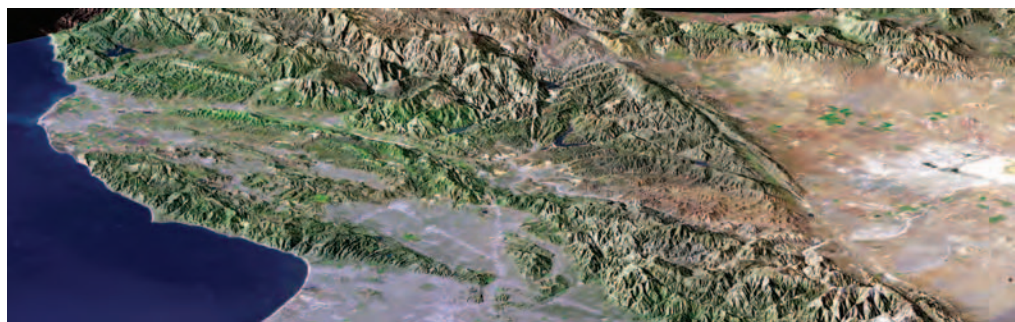
## The U.S. Climate Change Science Program for FY 2006

The synthesis and assessment products will be generated by researchers in a process that involves review by experts, public comment from stakeholders and the general public, and final approval by the departments/agencies involved in CCSP. The program has prepared and recently released guidelines for the drafting and review process that are intended to ensure consistency and transparency in preparing the products. The guidelines were made available for public comment from 29 March to 7 May 2004. They have been revised extensively in response to these comments as well as advice from the NRC provided during a meeting of the NRC's Coordinating Committee on Global Change held in Washington, DC, on 8-9 April 2004. The final guidelines, the original draft version of the guidelines, and a collation of comments submitted during the review period are all available on the CCSP web site (see <[www.climate-science.gov/Library/sap/sap-guidelines.htm](http://www.climate-science.gov/Library/sap/sap-guidelines.htm)>).

The guidelines describe steps to be followed in each of three phases of the preparation process: developing the prospectus, drafting and revising, and final approval and publication. This methodology for product development will facilitate involvement of the research community and user groups in ensuring that the products are focused in a useful fashion and meet the highest standards of scientific excellence. The guidelines also encourage transparency by ensuring that public information about the status of the products will be provided through the Federal Register, on the CCSP web site, and through other means. If further clarification of specific issues is required, the NRC will provide advice on an as-needed basis to the lead agency responsible for the preparation of each product.

Updates on the status of some of the synthesis and assessment products to be generated in the near term are included in boxes in relevant sections of this report.

CCSP will hold a workshop in November 2005 to facilitate interaction between CCSP and the government, academic, stakeholder, and international groups participating in the CCSP process. The 3-day workshop will be held in the Washington, DC, area. The workshop announcement appears on the CCSP web site at <[www.climate-science.gov/](http://www.climate-science.gov/)



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workshop2005>. The workshop will include presentations and discussion of the initial set of synthesis and assessment products, as well as other topics related to decision support.

## Commitment to “Lessons Learned” in Decision Support and Assessment

To build on the experiences of earlier assessment activities, CCSP has requested that the NRC carry out an analysis of global change assessments that have addressed topics broadly similar to those encompassed by CCSP. The analysis will examine the following aspects of global change assessments:

- Establishing clear rationales and appropriate institutional structures
- Designing and scheduling assessment activities
- Involving the scientific community and other relevant experts in preparation and review
- Engaging potential users
- Accurately and effectively communicating scientific knowledge, uncertainty, and confidence limits
- Improving global change research, including observation, monitoring, and modeling of past and future changes
- Creating assessment products that are valued by their target audiences.

