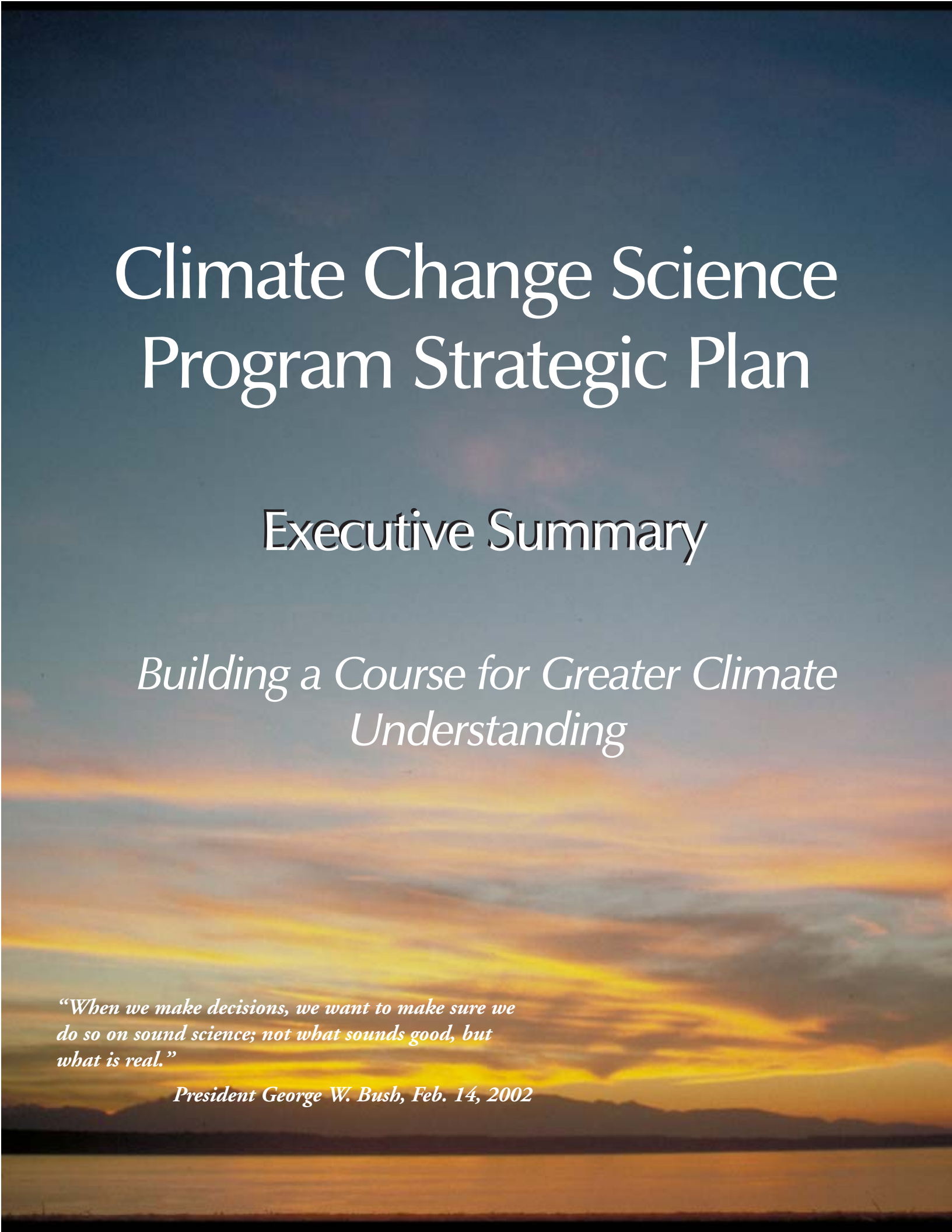

Climate Change Science Program Strategic Plan

Executive Summary

Building a Course for Greater Climate Understanding

"When we make decisions, we want to make sure we do so on sound science; not what sounds good, but what is real."

President George W. Bush, Feb. 14, 2002

The Climate Change Science Program (CCSP) brings together the resources and expertise of thirteen departments and agencies of the U.S. Government into a common management structure in support of research on climate and global change. This combined approach enables the U.S. Government to put forth an unprecedented effort to address the challenges and answer the questions posed by these issues. This document describes a research strategy for developing improved knowledge of climate variability and change and the potential impacts on our environment and our lives. It also provides for the development of resources and tools that will empower policy-makers with the knowledge necessary for making informed decisions that will benefit our Nation and the world.

The CCSP Strategic Plan's *vision* is 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. Its *mission* is to develop a framework for acquiring and applying knowledge of the Earth's global environment through research, observations, decision support and communication.

The CCSP Strategic Plan was developed through an open and transparent process that engaged the global climate science community and interested stakeholders from academia, industry, government, interest groups and the general public. The Strategic Plan synthesizes a broad range of perspectives and interests into a powerful framework that reaches across government agencies, nations and scientific disciplines to address scientific challenges through integration, cooperation and coordination.

The CCSP strategic plan's* vision *is "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."

Responding to the National Research Council of the National Academy of Sciences June 2001 report commissioned by President Bush, the President established the Climate Change Research Initiative, to "study areas of uncertainty and identify priority areas where investments can make a difference." Those principles include:

- Adopt a measured approach based on the best science
- Remain flexible, able to adapt to new discoveries and technology
- Leverage the power of markets and technological innovation
- Ensure global participation
- Ensure continued economic growth

The CCSP Strategic Plan will advance the state of knowledge of climate variability, the potential response of the climate system (and related human and environmental systems) to human-induced changes in the atmosphere and land surface, and the implications of these changes and management options for natural environments and our way of life. The plan will support scientific discovery and excellence, and encourage partnerships that facilitate the use of knowledge to protect the Earth's environment and ensure a safer, healthier planet for future generations.

Core Approaches

The Strategic Plan identifies four core approaches that will serve as the backbone to achieving its mission. Those areas are identified as science, observations, decision support and communications. By focusing in these specific areas the plan focuses on moving in new scientific directions, employing new research activities, filling critical data gaps through observations, developing operational tools for decision-makers and managers and communicating results across communities and across borders.

1. Research: Plan, sponsor, and study changes in climate and related systems

The science element will incorporate seven interdisciplinary research elements with an emphasis on integrating activities such as modeling, observations, and data management, with its research activities, while maintaining a careful balance between focus and breadth by involving both decision makers and the science community. The seven science elements include:

- Atmospheric Composition
- Climate Variability and Change
- Global Water Cycle
- Land Use/Land Cover Change
- Global Carbon Cycle
- Ecosystems
- Human Contributions and Responses

2. Observations: Enhance observation and data management systems for a comprehensive set of variables needed for research on changes in climate and related systems

Observations will play a key role in filling critical data gaps. As this data becomes available it will fill a need for enhanced global and regional integration of observation and data management systems, especially to help produce new and improved products for decision support activities. The U.S. has taken the lead in developing a new international Earth Observation program to be developed over the next 10 years, which will be the subject of the Earth Observation Summit hosted by the U.S. on July 31, 2003. The CCSP will benefit from and contribute to the design and operational implementation of this system.

3. Decision support: Develop improved science-based decision support resources

Ultimately, the knowledge gained from science must be available to decision-makers in usable formats that clearly indicate levels of uncertainty and confidence. These tools will enable the development of new methods, models, and other resources that facilitate economic analysis, policy analysis and environmental management decision making.

4. Communications: Communicate results to domestic and international scientific and stakeholder communities stressing openness and transparency

Climate change is inherently a global issue, with implications that touch every nation and every community. It is incumbent on the U.S., as a leader in climate science to communicate its findings with interested partners in the United States and throughout the world, and to *learn from* these partners on a continuing basis. As an essential part of its mission, the CCSP undertakes the significant responsibility of enhancing the quality of public discussion by stressing openness and transparency in its findings and reports.

Mission Goals

Working within the core constructs outlined above, the Strategic Plan outlines five overarching scientific goals aimed at addressing key questions and uncertainties. In meeting these goals, separately and together, we will make significant progress in achieving our stated mission and take a critical step toward fulfilling the CCSP vision of 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.

Goal 1: Extend knowledge of the Earth's past and present climate and environment, including its natural variability, and improve understanding of the causes of observed changes

Goal 2: Improve understanding of the forces bringing about changes in the Earth's climate and related systems

Goal 3: Reduce uncertainty in projections of how the Earth's climate and environmental systems may change in the future

Goal 4: Understand the sensitivity and adaptability of different natural and managed systems to climate and associated global changes

Goal 5: Explore the uses and identify the limits of evolving knowledge to manage risks and opportunities related to climate variability and change

Summary

The CCSP Strategic Plan is a framework to address some of the most complex questions and problems that our nation and the world now face. The issue of climate variability and change, the level and affects of potential human contributions to these issues and how we adapt and manage these impending forces is a capstone issue for our generation and those to follow. This plan addresses these challenges by leveraging existing knowledge to learn new things, building bridges across communities and scientific disciplines to gain greater insight, reaching out to decision-makers to calibrate knowledge with action, and maintaining an open and transparent process to ensure that our partners are heard and we are hearing them. It stakes out new scientific ground in the area of climate-change modeling and observations and promises to adapt to new technology and discoveries. In short, this plan meets the criteria set forth by President Bush when he created CCRI and is the most comprehensive effort to define and focus climate change research ever attempted. We welcome review of this plan and appreciate all comments.

For more information on CCSP and the Strategic Plan, visit *www.climatescience.gov*. ❖

Research under the U.S. Climate Change Science Program is sponsored by 13 Federal agencies:

National Science Foundation
Department of Commerce
Department of Energy
Environmental Protection Agency
National Aeronautics & Space Administration
Department of State
Agency for International Development
Department of the Interior
Department of Agriculture
Department of Health and Human Services, National Institutes of Health
Department of Transportation
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