

2003 ARM Science Team Meeting

The U.S. Climate Change Science Program Strategic Plan

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U.S. Climate Change Science Program – Themes

- **Global climate change: a capstone issue for our generation. Major new technology is needed.**
- **Accelerate the application of basic climate research to the evaluation of response strategy options**



U.S. Climate Change Science Program – History

- **U.S. Global Change Research Program (USGCRP): 1987 and 1990**
- **President Bush announces Climate Change Research Initiative (CCRI) June 11, 2001**
- **President Bush announces U.S. Climate Change Science Program, incorporating USGCRP and CCRI February 14, 2002**
- **Drafting timeline**

U.S. Climate Change Science Program – Four part focus

- 1. Science**
- 2. Observations and Data**
- 3. Decision Support Resources**
- 4. Communication and Education**



Changes in Solar Radiation

Changes in the Atmosphere: Composition, Circulation

water vapor, carbon dioxide,
suspended particles,
other greenhouse gases

Changes in the Hydrological Cycle

Clouds

Atmosphere

Changes in/on the Land Surface: Land Use, Vegetation, Ecosystems

multiple effects on natural ecosystems

Human Influences
& Effects

Land

Rivers & Lakes

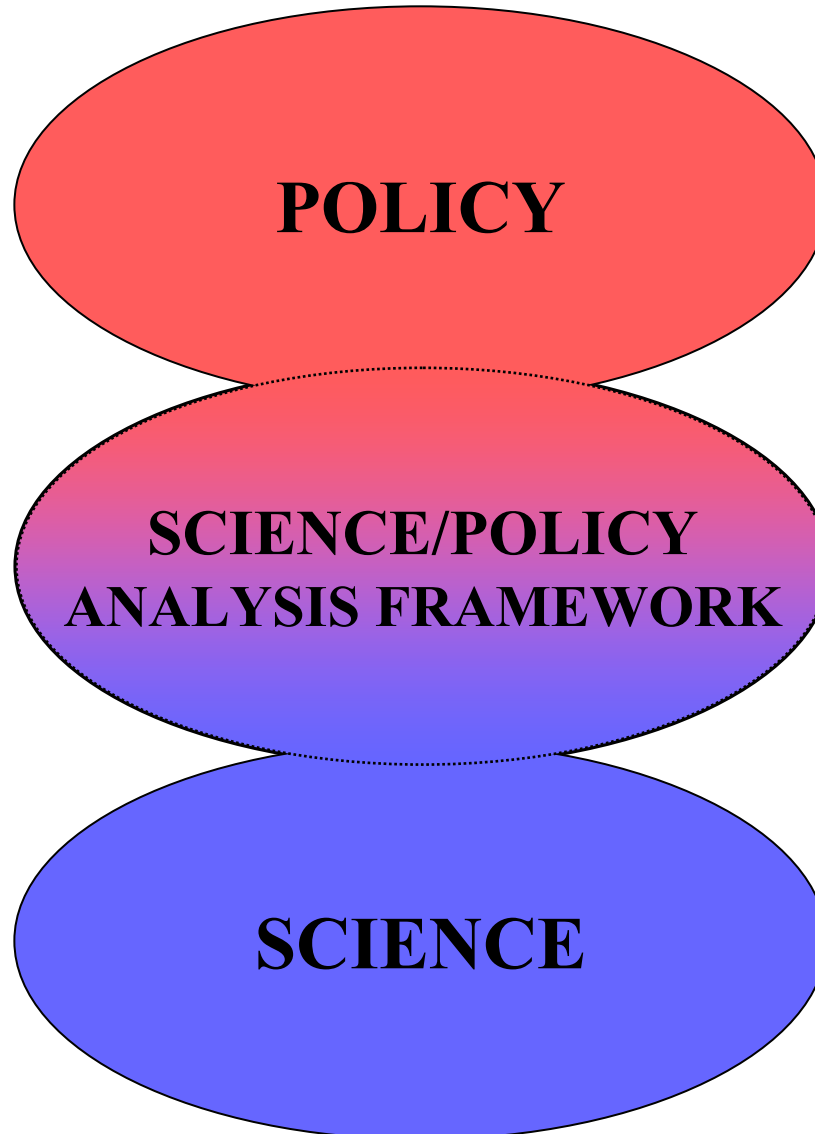
Ocean Currents
& Ecosystems

Sea Ice

Changes in the Ocean: Circulation, Biogeochemistry

Outgoing Radiation

Science-Policy Interface



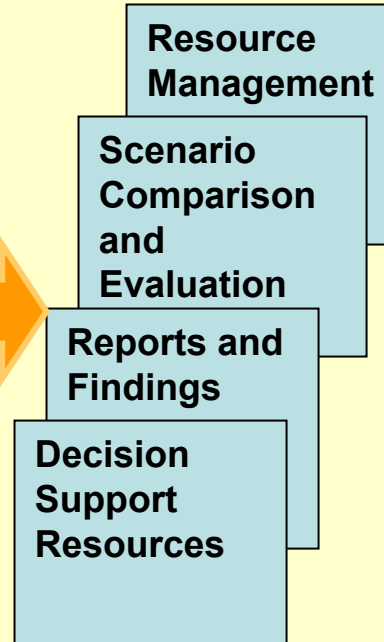
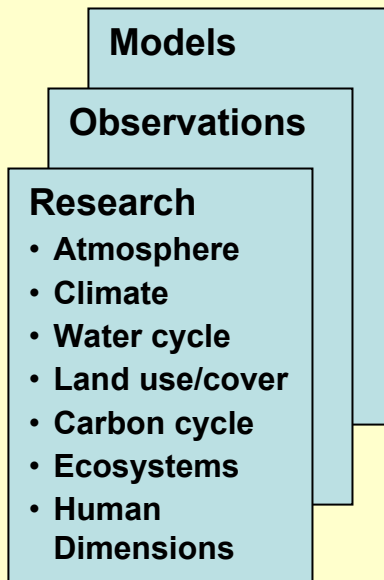
CCSP Science for Society and Decision Support

International, National, Sectoral, and Regional Issues

Climate and Earth Science Questions

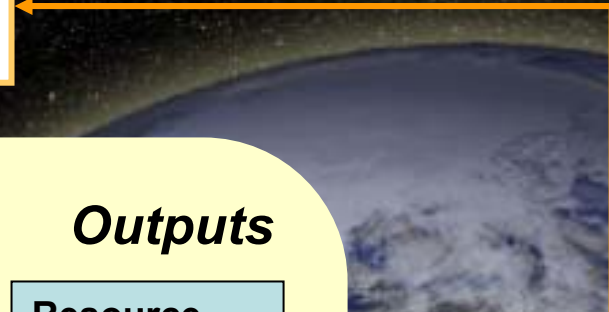
Inputs

Outputs



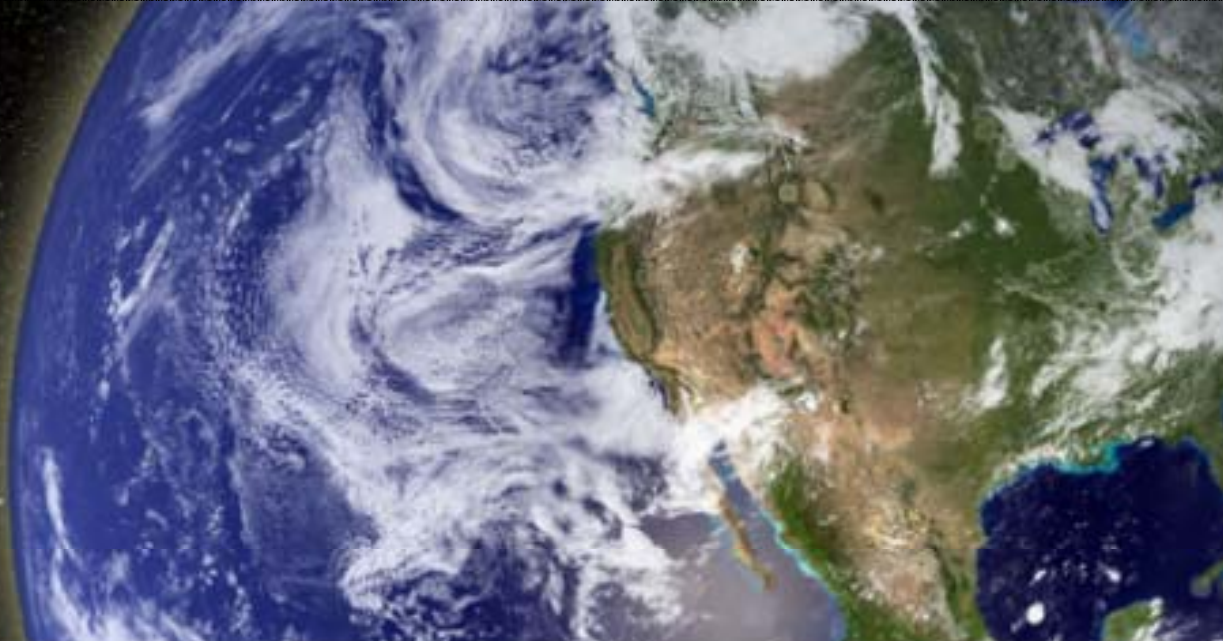
Outcomes

- New Understanding
- Public Debate
- Policy Decisions
- Management Decisions
- Educational Resources



Example Science-Policy Framework Topics

- **Sequestration**
- **Greenhouse Gas Stabilization**
- **Technology Development and Adoption**
- **Regional Sensitivity**



Workshop Results/Public Comments – Issues

- **Resources and prioritization**
- **Realistic timelines**
- **Short- vs. long-term balance**
- **Interagency process**
- **Agency responsibilities**
- **Stakeholder communication, incl. international**
- **Build on prior work**
- **Linkages and cross-cutting themes**
- **Regional analyses**
- **Ecosystem monitoring**
- **Model development**

National Research Council First Report— Compliments

- **Builds on well-established USGCRP foundation**
 - **Stresses need for science input to decision making**
 - **Identifies many cutting-edge research activities**
 - **Calls for greatly improved observational capabilities**
- 

National Research Council First Report— Recommendations

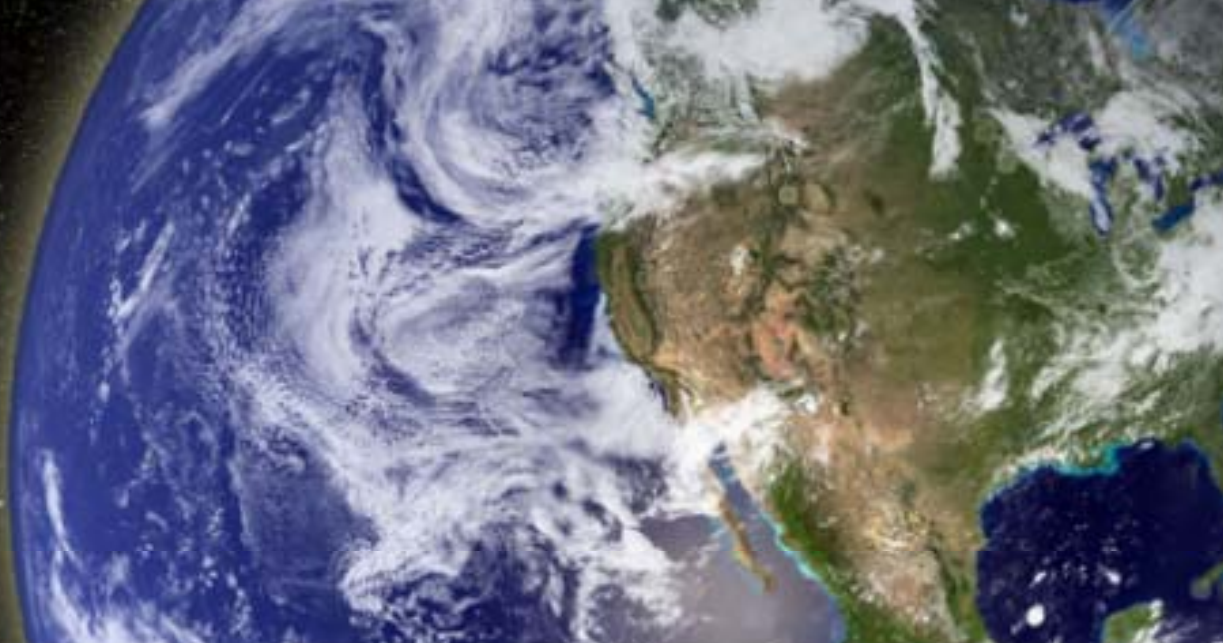
- **Clarify vision, goals, and priorities of the CCSP and CCRI**
- **Improve program management description**
- **Fill key information needs**
- **Enhance efforts to support decision making**
- **Create basis for implementation**
- **Create external review board**

Revised Plan will include:

- **Decision support**
- **Adaptation**
- **Regional analyses**
- **Ecosystem perspective**
- **Technology**
- **Crosscut issues**
- **International cooperation**
- **Stakeholder communication**
- **Resources and Budget**

Earth Observation Summit

- **Hosted by the U.S. Government in Washington, DC, on July 31, 2003**
- **Senior international government and non-government leaders in climate science, technology and environment**



Earth Observation Summit

- **Develop a framework for a comprehensive Earth observation system**
- **Build on existing infrastructure and capabilities**
- **Develop a commitment to a new level of comprehensive global climate and ecosystem monitoring**
- **Initiate the planning to implement this commitment**

ARM in the CCSP Context...

- National policy and decision-making – complex role of aerosols in climate forcing and the hydrological cycle
- Resource management and planning – improve forecasts of heating/cooling requirements
- Observations – combined ground-based/satellite remote sensing – especially clouds and aerosol – and of the surface



ARM in the CCSP context

- Ecosystems – surface temperature, insolation, humidity, UV-B, etc. affect both natural and managed ecosystems; more data and research are crucial to progress in evaluating consequences of global change for natural resources
 - Site-specific ideas
 - Cooperative measurements at non-ARM sites



Conclusion: Opportunities and Challenges

- Tighter integration and synthesis
- Broader context of research results from ARM
- Role in Earth Observations and the Earth Observation Summit
- Integration of user perspectives
 - Inform research planning with identified user needs
 - Accelerate development of decision support resources