House and Senate Briefing on the U.S. Climate Change Science Program Strategic Plan

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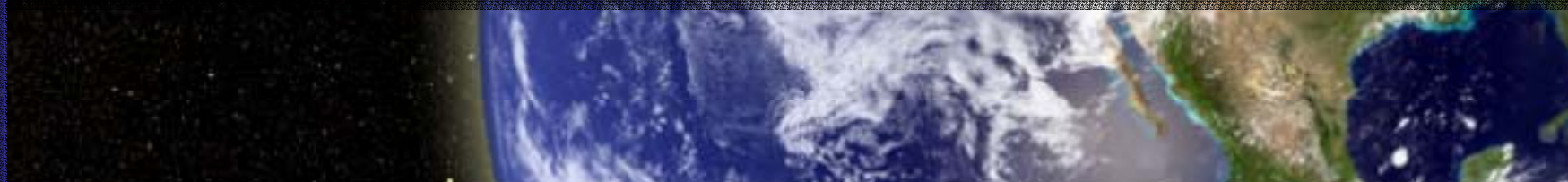
www.climatescience.gov

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



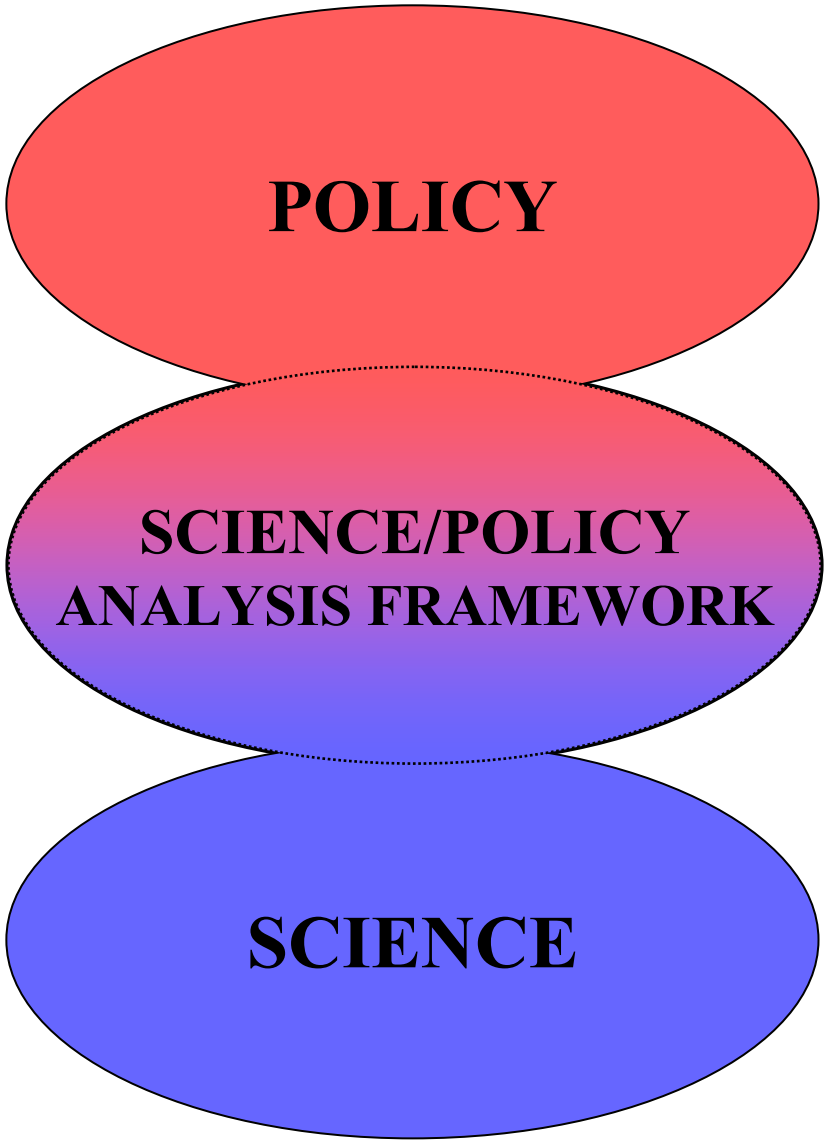
Guiding Vision for the CCSP

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.

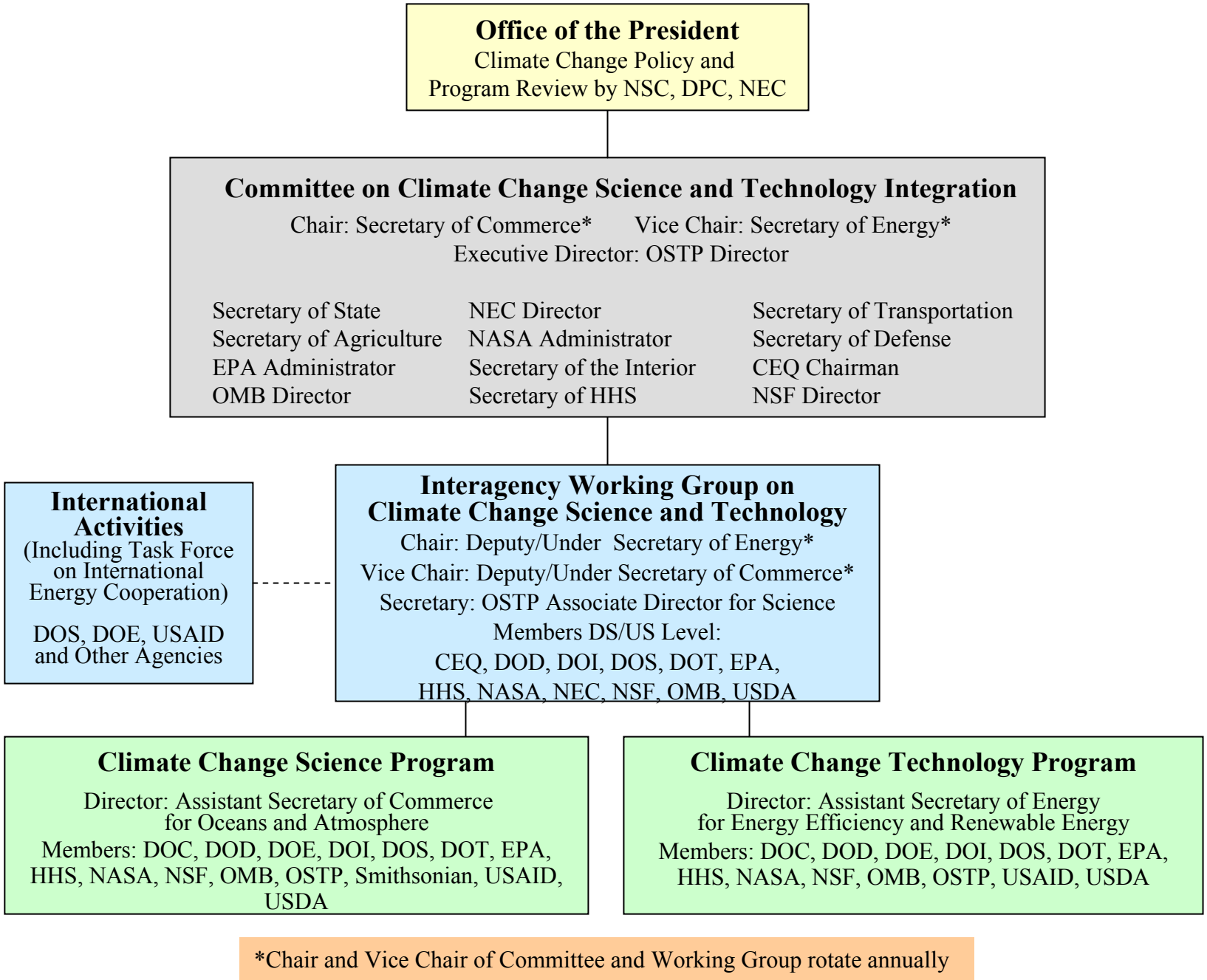
CCSP Mission

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

Science-Policy Interface



Climate Science and Technology Management Structure



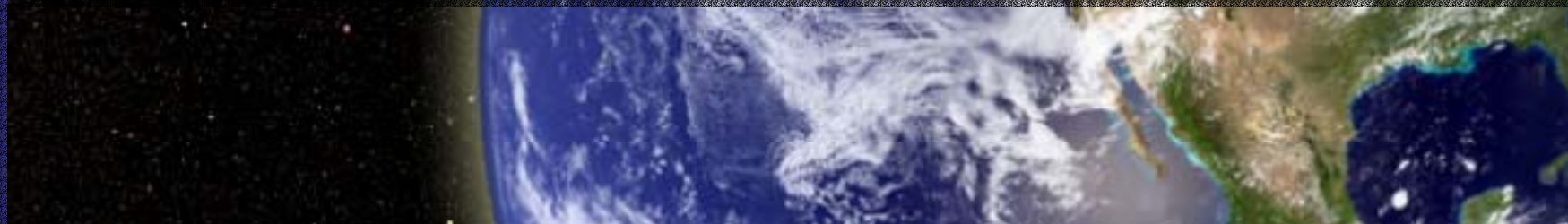
*Chair and Vice Chair of Committee and Working Group rotate annually

U.S. Climate Change Science Program – Guidelines

- Question-based strategic plan
- Integration of USGCRP and CCRI
- Combined scientific community and stakeholder review
- Policy relevant and policy neutral standards
- Transparency and comprehensiveness standards
- Reporting of basis and degree of certainty in findings

For the near term, the CCSP will emphasize research on three sets of scientific uncertainties highlighted by the NRC:

- Atmospheric distributions and effects of aerosols
- Climate feedbacks and sensitivity
- Carbon sources and sinks, focusing particularly on North America



In addition, CCSP will focus on efforts to:

- Ocean observations and ocean dynamics
- Improve observations for model development and application
- Enhance biological and ecological observing systems
- Improve data archiving and information system architectures
- Development of state-of-the-art climate modeling
- Create 21 synthesis and assessment reports during the next four years

Goals for the U.S. Climate Change Science Program

CCSP Goal 1: Improve knowledge of the Earth's past and present climate and environment, including their natural variability, and improve understanding of the causes of observed variability and change

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

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

CCSP Goal 4: Understand the sensitivity and adaptability of different natural and managed ecosystems and human systems to climate and related global changes

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

CCSP Goal 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***

- **Temperature trends in the lower atmosphere**
- **Past climate variability and change in the Arctic and at high latitudes**
- **Reanalyses of historical climate data for key atmospheric features**

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

- Updating scenarios of greenhouse gas emissions and concentrations, in collaboration with the CCTP
- North American carbon budget and implications for the global carbon cycle
- Aerosol properties and their impacts on climate
- Trends in emissions of ozone-depleting substances, ozone layer recovery, and implications for ultraviolet radiation exposure and climate change

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

- Climate projections for research and assessment based on emissions scenarios developed through the CCTP
- Climate models and their uses and limitations,including sensitivity, feedbacks, and uncertainty analysis
- Climate extremes including documentation of current extremes. Prospects for improving projections
- Risks of abrupt changes in global climate

CCSP Goal 4: *Understand the sensitivity and adaptability of different natural and managed ecosystems and human systems to climate and related global changes*

- Coastal elevation and sensitivity to sea level rise
- State-of-knowledge of thresholds of change that could lead to sudden changes in some ecosystems and climate-sensitive resources
- Relationship between observed ecosystem changes and climate change
- Preliminary review of adaptation options for climate-sensitive ecosystems and resources
- Scenario-based analysis of the climatological, environmental, resource, technological, and economic implications of different atmospheric concentrations of greenhouse gases
- State-of-the-science of socioeconomic and environmental impacts of climate variability
- Within the transportation sector, a summary of climate change and variability sensitivities, potential impacts, and response options

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

- Uses and limitations of observations, data, forecasts, and other projections in decision support for selected sectors and regions
- Best-practice approaches to characterize, communicate, and incorporate scientific uncertainty in decisionmaking
- Decision support experiments and evaluations using seasonal to interannual forecasts and observational data

Table of Contents for the CCSP Strategic Plan

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
- To obtain international support for a system of integrated space-borne, airborne, and *in situ* observations, to help understand and address global, environmental and economic concerns (www.earthobservationsummit.gov)