

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

Climate Research Committee

Agenda

October 25-27, 2004

National Academies
Keck Center Room 101
500 5th Street, NW
Washington, DC, 20001

Monday, October 25, 2004

OPEN SESSION

1:00 P.M. Welcome and introductions Antonio Busalacchi, Jr.
Committee Chair

1:10 P.M. Ongoing ad hoc projects

- Review of the GAPP Science and Implementation Plans Sheldon Drobot
- Future of the Tropical Rainfall Measuring Mission Sheldon Drobot
- Climate Change in Asia: Dan Walker/Hassan Virji
Implications for Regional Stability
- Climate Change and Transportation Steve Godwin/Amanda Staudt

For the following CRC projects that are underway, information has been provided in the briefing books, but no discussion time planned unless members have specific questions:

- Review of CLIVAR Program Office Julie Demuth/David Karoly
- BASC Summer Study on Coupled Models Julie Demuth
- NOAA Climate Data Records Sheldon Drobot
- Radiative Forcings Amanda Staudt

2:00 P.M. New ad hoc projects

- Lessons Learned from Climate and Global Change Assessments Amanda Staudt
- Review of the CCSP Synthesis and Assessment Product on Temperature Trends Amanda Staudt

3:00 P.M. Break

3:30 P.M. Draft Plan for Earth Observations Systems Ron Birk, NASA

4:30 P.M. Earth Science and Applications from Space: A Decadal Survey TBD

5:30 P.M. Adjourn

Tuesday, October 26, 2004

Forum on Characterizing and Communicating Climate Change Uncertainties

Climate change information, particularly projections of future climate, will always be associated with often significant uncertainty. As this information is increasingly used in a variety of societal applications—from water, energy, and agricultural management to national and international policy making—it will become more important for associated uncertainties to be characterized and communicated in a manner that effectively informs decision making. This forum will explore the ways in which uncertainties in climate change science might be most effectively characterized and communicated, in particular to more effectively inform climate change decision making.

Dealing with climate change information in a decision making context is particularly challenging because it requires consideration of numerous sources of uncertainty. The so-called “cascade of uncertainty” includes uncertainties in future emissions, which depend in many cases on human behavior; the translation of these emissions into future greenhouse gas and aerosol concentrations; modeling the effect of changes in atmospheric composition and other forcings on the climate; modeling impacts on humans and ecosystems associated with the climate change; and then considering the implications of these uncertainties for decision making. Though scientists typically consider the uncertainties cascading from the projection of emissions through the simulation of future climate and impacts, the cascade can also be appropriately stood on its head so that decision making is the primary motivating factor in exploring uncertainty.

There are also the important distinctions between reducing, quantifying, and understanding uncertainties and in otherwise characterizing information to help climate-change decision makers more effectively manage these uncertainties. It is not yet clear what type of information is most useful under what circumstances, and in some cases it is not yet known what information is actually feasible to produce. Of particular urgency is determining how uncertainty should best be characterized in the context of decision making on various spatial and temporal scales and for various applications.

This forum has two primary objectives. First, it will explore whether program managers for climate science might usefully set goals regarding uncertainty in addition to the current goal of reducing uncertainty. Second, the forum aims to distill key research gaps, confusions, and controversies that might be explored by a longer-term NAS panel study.

8:30 A.M. Welcome and Introductions

Antonio Busalacchi, Jr.
Committee Chair

8:40 A.M. **Panel #1: Wrestling with Climate Change Uncertainty**

The frequent reference to uncertainty in climate policy contexts makes it urgent to achieve clarity about the scientific and political role of “uncertainty” in the climate change arena. Panelists will address how uncertainty enters decision making processes generally, challenges for the scientific community in characterizing and communicating uncertainty, and specific challenges associated with how uncertainty enters climate change policy discussions.

Panelists:

Robert Lempert, RAND Corporation
Linda Mearns, National Center for Atmospheric Research
Rad Byerly, University of Colorado

10:00 A.M. Break

10:30 A.M. **Panel #2: Decision-makers' Needs for Uncertainty Information**

Decision makers in many areas of human activity effectively manage their activities in presence of large and sometimes irreducible uncertainty. This panel will explore applications of climate change information, potential requirements for characterizing uncertainty, and the frequent need for tailored information about uncertainties particularly relevant to specific types of decisions.

Panelists:

Kathy Jacobs, University of Arizona
John Andrew, California Department of Water Resources
Ken Hass, Ford Motor Company
Gary Yohe, Wesleyan University

12:30 P.M. Lunch

1:30 P.M. **Panel #3: Characterizing Uncertainty in Climate Science**

The scientific community is still determining how best to characterize and communicate uncertainty about climate change. Panelists will discuss current state-of-the-art approaches for exploring and reporting climate change uncertainty, the complex statistical challenge of quantifying and understanding the uncertainty of climate model projections, scenario approaches for describing future anthropogenic forcings, and possible avenues for improving our capabilities.

Panelists:

Isaac Held, Geophysical Fluid Dynamics Laboratory
David Karoly, University of Oklahoma
Mort Webster, University of North Carolina
Hugh Pitcher, Pacific Northwest Laboratory

3:00 P.M. Break

3:30 P.M. **Panel #4: Implications for Climate Research and Assessments**

The authors of synthesis and assessment reports addressing climate have struggled over the years with the most appropriate information to provide decision makers under conditions of uncertainty and how uncertainty should help frame the scientific research agenda. This final panel will focus on how uncertainty may be addressed in upcoming assessment, the research goals implied by the needs of decision makers facing uncertainty, and opportunities for improving our understanding of uncertainty and how to communicate it.

Panelists:

Bob O'Connor, National Science Foundation
Richard Moss, U.S. Climate Change Science Program
Andy Revkin, New York Times

5:00 P.M. Adjourn