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## CLIMATE CHANGE SCIENCE AND TECHNOLOGY

### Research and Development Funding in the President's 2009 Budget

Federal climate change expenditures, estimated at a record \$8.6 billion in the 2009 Budget, reflects the Administration's commitment to meeting the aims of the United Nations Framework Convention on Climate Change while preserving a strong American economy. The President's 2009 Budget supports a wide range of climate change-related activities in four main categories – science, technology, international assistance, and tax provisions. Climate change science and technology are described below:

#### **Climate Change Science Program**

The U.S. Global Change Research Program, authorized by the Global Change Research Act of 1990, and the President's Climate Change Research Initiative of 2001 are integrated in the comprehensive U.S. Climate Change Science Program (CCSP). The CCSP Strategic Plan prioritizes developing knowledge on climate variability and change and for application of this knowledge.

Working within the overarching priorities defined in the Strategic Plan, the CCSP's interagency coordination and integration efforts will give particular emphasis in FY 2009 to the following climate change research issues:

- development of an integrated earth system analysis capability;
- creating a high-quality record of the state of the atmosphere and ocean since 1979;
- development of an end-to-end hydrologic projection and application capability;
- enhanced carbon cycle research on high latitude systems;
- quantification of climate forcing and feedbacks by aerosols,
- non-carbon dioxide greenhouse gases, water vapor, and clouds;
- assessment of abrupt change in a warming climate;
- examination of the feasibility of development an abrupt change early warning system;
- ecological forecasting.

The completion in 2007 of the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) relied heavily on U.S. funded science, much of which falls under the Climate Change Science Program. The work and four reports of the IPCC AR4 resulted in a shared Nobel Peace Prize for the IPCC, and the U.S. climate science enterprise contributed substantial and critical pieces of the foundational research in this widely referenced body of work.

CCSP has charted a set of 21 synthesis and assessment products (SAP) to provide technical summaries for policy makers. The first SAP was released in 2006. Three SAPs were completed in 2007. Twelve SAPs are scheduled to be published in 2008, with the final 5 due in 2009.

The FY 2009 CCSP budget request is about \$2 billion, an increase of approximately 12%, over the 2008 enacted level. The CCSP comprises over 13 agencies, but over 90% of the CCSP funding is distributed among the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF) and the Department of Energy (DoE). In fact, the 2009 CCSP budget seeks to expand research from the just enacted 2008 levels for NASA (12%); NOAA (22%); NSF (8%); and DOE (14%).

#### **Climate Change Technology Program**

The U.S. Climate Change Technology Program (CCTP) is a multi-agency effort coordinated by DoE that incorporates a variety of R&D activities to foster technologies that result in reduced greenhouse gas emissions. The CCTP provides strategic direction, planning, and analysis to help coordinate and prioritize the R&D activities within the portfolio in areas such as nuclear energy, carbon sequestration, renewable energy, energy efficiency, and low-carbon fuels. The CCTP has published a Strategic Plan that describes its vision and goals, as well as the potential contributions of new technologies to address climate change under various global scenarios. The CCTP has also identified within its portfolio a subset of priority R&D activities. In 2009, the CCTP will continue to focus on implementing the elements of its Vision and Framework document and Strategic Plan. Reports and general information about the CCTP are available on the program's website: [www.climatetechnology.gov/](http://www.climatetechnology.gov/).