WRITTEN STATEMENT BY
DR. WILLIAM BRENNAN
ACTING DIRECTOR, U.S. CLIMATE CHANGE SCIENCE PROGRAM
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

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Chairman Inouye and Co-Chairman Stevens, I appreciate the opportunity to testify to you today about climate change research and scientific integrity. My name is Bill Brennan, and since June, 2006, I have been the acting director of the U.S. Climate Change Science Program, as well as the Deputy Assistant Secretary for International Affairs with the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA).

I will first talk about the Climate Change Science Program and the current state of climate research and then I will discuss the issue of scientific communications, emphasizing issues at NOAA.

What is CCSP?

The U.S. Climate Change Science Program (CCSP) was established by President Bush in 2002 and integrates federal research on global climate change, as sponsored by 13 federal agencies.[1] CCSP is a multi-agency program charged with: investigating natural and human-induced changes in the Earth's global environmental system; monitoring, understanding, and predicting global change; and providing a sound scientific basis for national and international decision-making. The CCSP combines the near-term focus of the Administration's Climate Change Research Initiative, initiated in 2001 — including a focus on advancing the understanding of aerosols, carbon sources and sinks, and improvements in climate modeling — with the breadth of the long-term research elements of the U.S. Global Change Research Program.

Since CCSP was created in 2002, the program has successfully integrated a wide range of research, climate science priorities and budgets of the 13 CCSP agencies. CCSP

[1] The CCSP participating agencies include the Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, the Interior, State, and Transportation, the National Science Foundation, the Environmental Protection Agency (EPA), the National Aeronautics and Space Administration (NASA), U.S. Agency for International Development, and the Smithsonian Institution. Additional CCSP liaisons reside in the Office of Science and Technology Policy, the Council on Environmental Quality, the National Economic Council and the Office of Management and Budget.

integrates research and observational approaches across disciplinary boundaries and is also working to create more seamless approaches between theory, modeling, observations, and applications required to address the multiple scientific challenges posed by changes in climate. CCSP is taking on the most challenging questions in climate science and is developing products to convey the most advanced state of knowledge to be used by federal, state and local decision makers, resource managers, the science community, the media, and the general public. Since 2002, the Administration has spent approximately $9 billion on climate change science.

Agreement on Climate Change

In 2001, the President asked the National Academy of Sciences to do a special report on the state of the science on climate change. The report, entitled *Climate Change Science: An Analysis of Some Key Questions* stated: "Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities, causing surface temperatures and subsurface ocean temperatures to rise. Temperatures are, in fact, rising. The changes observed over the last several decades are likely mostly due to human activities, but we cannot rule out that some significant part of these changes is also a reflection of natural variability." In reaction to the report, the President created a cabinet-level committee, and in particular CCSP and the Climate Change Technology Program to lead the Administration's efforts to confront this serious environmental problem. Since 2001, the Administration has devoted nearly $29 billion to climate-related science, technology, international assistance, and incentive programs.

The latest report by the Intergovernmental Panel on Climate Change (IPCC), released on February 2, 2007, expressed even more certainty that the changes observed over the last several decades are mostly due to human activities, primarily through the release of greenhouse gases.

The Bush Administration accepts the published report, and notes that the U.S. government played a large role in its development. Many U.S. scientists were instrumental in putting together this report, especially Dr. Susan Solomon, a senior scientist at NOAA's Earth System Research Laboratory in Boulder, Colorado, who was co-chair of the Working Group I (WG1). U.S. observations networks, computer modeling efforts, and research programs all provided crucial data and analysis. Without the efforts of the Administration and the CCSP program much of this report would not have been possible.

The U.S. Climate Change Science Program managed the U.S. author nomination process for IPCC WG1, including soliciting complete applications, interfacing with relevant Technical Support Units and the Secretariat in Geneva, convening disciplinary expert panels, hosting series' of meetings, and consolidating all materials of selected finalists. CCSP also managed the Expert and Government Reviews for WG1 by providing technical advice and networking infrastructure. CCSP agencies assisted with issuing a public call for comments, collecting comments, assembling expert panels to review inputs for technical merit, accepting/rejecting/modifying said input, and preparing the final package.

The work conducted by the federal agencies as part of CCSP was critical to gaining a greater understanding of climate change processes, including relating observations and models, for the IPCC report. CCSP Synthesis and Assessment Report 1.1 reconciled lingering and long-standing difficulties that have impeded understanding of changes in atmospheric temperatures and the basic causes of these changes. It brought models and observations more closely in line, and provided increased confidence in our ability to model and predict future changes.

Over the next two years CCSP will be completing a series of 21 Synthesis and Assessment Reports, with the report on emissions scenarios to be released shortly. These reports describe the state of the science on a range of key issues, thereby providing further important contributions to the nation's and world's discussion on climate change. The first report, released in May 2006, helped correct errors identified in satellite data and other temperature observations in the troposphere and stratosphere, and contributed significantly to the IPCC's increased confidence in the influence of anthropogenic greenhouse gases on temperature increase since the mid-20th century. Due out in the next couple of months will be a report on the North American Carbon Cycle, which will focus on key issues for carbon management and policy. In addition, later this year the CCSP will release several products that address the sensitivity and adaptability of ecosystems to climate change.

How are CCSP Reports Produced?

I want to describe the process by which the Climate Change Science Program is producing its 21 reports — which is with an intensive commitment to scientific peer review, transparency and public involvement. The specific details of each step of the process are available on the CCSP website (http://www.climatescience.gov). All of the products are being drafted by expert groups in compliance with the provisions of the Federal Advisory Committee Act and each product will receive intensive scientific peer review, as well as at least two general public reviews (one for the prospectus and one for the full report). CCSP has also engaged the National Research Council (NRC) to provide continuing analysis and advice on the conduct of the CCSP program including the preparation of the CCSP scientific products. The NRC advisory reports will all be public documents, and will provide the Congress and all interested stakeholders with independent reviews of CCSP performance. I want to publicly acknowledge and thank Dr. James Mahoney, who is on the panel today, for all his work and efforts in creating this process and leading the CCSP program for four years.

Administration View on Scientific Communications

The Bush Administration values science as a basis for effective policy action in its service to the public, and regards the timely, complete and accurate communication of scientific information as an important part of that service. The White House, through the Office of Science and Technology Policy, asked Departments and Agencies to review their respective policies to ensure scientific openness and that employees and management understand their rights and obligations under these policies.

NOAA Scientific Communication

The media have covered a handful of instances where NOAA scientists have expressed concerns about their ability to talk to the media about their research. Admiral Lautenbacher, NOAA's Administrator and a scientist himself, continues to take this issue very seriously. He has sent communications to every NOAA employee about the importance of open communications, as science is the foundation for everything that NOAA does as an agency. He has conducted several town hall meetings around the country with NOAA employees and expressly stated that anyone who feels that NOAA or the Department of Commerce processes are not supporting the free flow of scientific research should contact him personally. I would like to point out that NOAA scientists publish between 800 and 1000 scientific papers a year. In coordination with NOAA's public affairs office, frequent interviews are conducted on our research and several hundred press releases are sent out each year.

DOC Communication's Policy

The issue of scientific integrity is important not only to NOAA but also the Department of Commerce, which has several bureaus, in addition to NOAA where scientists and researchers provide crucial information to the media and the public on a regular basis. Secretary Gutierrez and Deputy Secretary Sampson have made this issue a top priority for the Department and have reiterated their strong support for open communication of peer-reviewed science. When the Department reviewed its current communications policies, it found they dated back decades and are based on those set up by President Jimmy Carter. There are actually three different department-wide orders that at times are contradictory and certainly are woefully outdated. The Department has accordingly decided to consolidate and simplify the three dated policies into one policy relevant to current times.

It is my understanding that the drafting process is almost complete and that the Department is in the process of fulfilling its labor relations obligations regarding union consultation. In this drafting process, the Department sought the input of many scientists and employees. As I understand it, this was an unprecedented process, involving three separate rounds of input and feedback. The Department has been very pleased with the constructive feedback and officials feel the draft policy has been greatly improved due to this feedback. The policy will reaffirm the Department's goal of fostering transparency and media and public access, including a specific statement that clarifies the independence of fundamental research communications. And, the new policy has a strong appeals process so that if someone feels aggrieved, they can seek a quick appeal. It has been and continues to be the Secretary's policy and that of his leadership team to encourage and support open communication of scientific research and findings.

Conclusion

Since 2001, the Bush Administration has spent $29 billion on climate-related science, technology, international assistance, and incentive programs. Federal researchers and grant money from the U.S. government contribute substantially to the world's understanding of climate change. The recent IPCC report would not have been possible

without the United States. The Administration has been clear that climate change is a serious problem, the Earth is warming and humans are the leading cause.

The report of Working Group I of the IPCC demonstrates that the level of scientific certainty has increased regarding the human impact on climate change. However, more research must be done to answer the many questions and uncertainties that remain in this field, such as the role aerosols and deep ocean currents play in regulating the climate, as well as further work on the relationship between climate frequency, distribution, and severity of extreme weather events, such as tropical cyclones and drought.

Regarding scientific communications and openness, the Administration takes the concerns of its scientists very seriously, and each Department and Agency is reviewing (and modifying if necessary) its policies to ensure government scientists do not face censorship on any scientific matter, including climate change issues. The CCSP program has an open and transparent process, which includes several public reviews before any reports are finalized. The Department of Commerce is also in the final stages of revising and updating its policies to ensure open communication of scientific research and findings.

Thank you again, Mr. Chairman for allowing me the opportunity to testify on these important issues.