COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
U.S. HOUSE OF REPRESENTATIVES

HEARING CHARTER

Reorienting the U.S. Global Change Research Program toward a user-driven research endeavor: H.R. 906

Thursday, May 3, 2007
2:00 p.m. to 4:00 p.m.
2318 Rayburn House Office Building

Purpose

On Thursday, May 3, 2007 the Subcommittee on Energy and Environment of the Committee on Science and Technology will hold a hearing to receive testimony on H.R. 906, *The Global Climate Change Research Data and Management Act of 2007.*

Introduced by Representative Mark Udall and Representative Robert Inglis, H.R. 906 would replace the current law that formally established the U.S. Global Change Research Program (USGCRP) in 1990 and reorient the program to produce more user-friendly research and information. The USGCRP has advanced our scientific knowledge of the Earth's atmosphere and climate and has provided us with a new data and information on the planet. However, scientific knowledge about the earth's climate has expanded and improved since 1990. There is a need to apply the improved knowledge we have gained about climate to produce information that federal, state, and local officials, resource managers, and businesses can use to develop response, adaptation, and mitigation strategies to reduce their vulnerability to climate change.

The Global Change Research and Data Management Act would require the Administration to identify and consult with members of the user community in developing the USGCRP research plan. The bill would also establish a new interagency working group to coordinate federal policies on data management and archiving. The measure would also retain language from the original statute that establishes the USGCRP and call for the administration to produce a national assessment of climate change every four years.

USGCRP Background

History of the Current Law

U.S. Global Change Research Act of 1990 (Public Law 101-606) was signed into law by President Bush on November 16, 1990. However, prior to passage of this legislation Congress and the Reagan and Bush Administrations established programs, advisory bodies and mechanisms to undertake climate change research and develop climate change policy.

The Climate Program preceded the USGCRP and was established by the National Climate Program Act (P.L. 95-367) in 1978. The Climate Program was intended to conduct climate research, provide climate information, and to support policy decisions to "assist the Nation and the world to understand and respond to natural and human-induced climate processes and their implications" (P.L. 95-367, § 3). It was established as an interagency program coordinated through a National Climate Program Office within the National Oceanic and Atmospheric Administration (NOAA). By the mid-1980s Congress began to consider expanding the Climate Program. At the time, the program was thought to be producing high quality science, but it was not providing information that would lead to policy responses to threats from climate change.

In the 1980s, climate change policies were developed within the White House although there were a number of climate change advisory groups and other decision-making groups within individual federal agencies. President Reagan established five Councils in the White House. In 1985, these five Councils were consolidated within two – a Domestic Policy Council and an Economic Policy Council.[1] Climate change policy was discussed within the Domestic Policy Council and first came to the attention of this Council because of public attention being paid to Congressional hearings being held to air concerns of the scientific community about the potential consequences of increasing greenhouse gases in the atmosphere.

In 1987, White House Science Advisor William Graham formed the Committee on Earth Sciences within the Federal Coordinating Council on Science, Engineering, and Technology (FCCSET). The purpose of this Committee was to "increase the overall effectiveness and productivity of Federal R & D efforts directed toward an understanding of the Earth as a global system" (CES 1987).

After several years of work, Congress passed, and President Bush signed, *The U.S. Global Change Research Act of 1990* (Public Law 101-606) which established the U.S. Global Change Research Program we have today. The Program is aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, and to promote discussions toward international protocols in global change research. The law codified the interagency structure put in place by the Reagan Administration and defined the agencies that would participate in the program. The law also requires development of a series of 10-year Plans for the conduct of research on global change by the federal government to: "advance scientific understanding of global change and provide usable information on which to base policy decisions related to global change", an evaluation of the Plan by the National Research Council, the coordination of agency budgets for global change research, and a report to Congress every four years on the consequences of climate change.

While research Plans have been produced periodically by the Program and reviewed by the National Research Council as required by the law, the production of periodic assessments of the findings of the global change program and the effects of global change on natural systems and sectors of the economy has been lacking. There has been only one comprehensive report

[1] Brownstein, R. and D. Kirschtien. 1986. Cabinet Power. National Journal June 28 1582-1589. Referenced in: R. A. Pielke, Jr. 2001. The Development of the U.S. Global Change Research Program: 1987-1994.

published since the beginning of the program satisfying this requirement of the law – the National Assessment on Climate Change published in 2001.

Current Administration Climate Change Initiatives

The current Administration has a number of initiatives that are related to past efforts conducted under the *Global Change Research Act*. The Climate Change Science Program (CCSP) is charged with integrating science on global change produced by federal agencies. The Program is producing a series of twenty one synthesis and assessment products on a range of subjects (http://www.climatescience.gov/). The Administration also has a Climate Change Research Initiative (CCRI) and the Climate Change Technology Program (CCTP), with NOAA and DOE designated as the lead agencies, respectively. The role of the CCRI is to reduce the significant remaining uncertainties associated with understanding human-induced climate change and facilitate full use of scientific information in policy and decision making on possible response strategies for adaptation and mitigation. The role of the CCTP is to focus research and development efforts on the identification and development of technologies that will achieve the Administration's climate change goals.

This policy has three basic objectives: slowing the growth of emissions, strengthening science, technology and institutions, and enhancing international cooperation. However, in 1990, total U.S. GHG emissions were 1,671 million metric tons in carbon equivalents (MMTCE). In 2000, total U.S. GHG emissions were 14.1 percent above 1990 levels, or 1,907 MMTCE. Even if the Administration's climate change goals are met, U.S. emissions of greenhouse gases will continue to grow.

The requested budget for the major climate change science programs in 2007 was estimated by the Congressional Research Service to be 4.9 billion dollars.[2] The participating agencies include virtually every department in the federal government: NASA, NSF, NOAA, DOE, USDA, DOI, HHS, EPA, the Smithsonian Institution and DOD. The core agencies that have contributed to climate change science are NASA, NOAA, NSF, and DOE.

Current State Initiatives on Climate Change

Absent of coordinated federal direction on adapting to climate change impacts, regions and states have taken action on their own to develop integrated plans to serve multiple user communities. Many states view policies that address climate change as an economic opportunity, rather than a financial burden. These states are positioning themselves as leaders in emerging markets related to climate change: producing and selling alternative fuels, exploring geographic specific adaptation strategies, attracting climate action related businesses, and selling greenhouse gas emission reduction credits.

In addition, regional efforts have been successful coordinating initiatives across state boundaries. These regional plans eliminate duplication for states with similar geographic makeup and help businesses by bringing greater uniformity and predictability to state rules and regulations. For

[2] Congressional Research Service (2007). Climate Change: Federal Expenditures; January 22; p. 3; Table 1. RL33817.

example, *Powering the Plains* is a regional initiative, involving participants from the Dakotas, Minnesota, Iowa, and Wisconsin, which aims to develop strategies, policies, and demonstration projects for alternative energy sources. The *Southwest Climate Change Initiative* will allow Arizona and New Mexico to work together to reduce greenhouse gases and address the impacts of climate change in the region. Other such projects include the Northeast *Regional Greenhouse Gas Initiative* (RGGI), *The Clean and Diversified Energy Initiative* launched by the Western Governors Association, *The West Coast Governors' Global Warming Initiative*, and the New England Governors' and Eastern Canadian Premiers' *Climate Action Plan*. These regional and state programs would greatly benefit from a user-driven Climate Change Research Program, as established in H.R. 906.

The USGCRP under H.R. 906

The USGCRP has continued to produce high quality science and advance our knowledge of Earth's climate system. However, the Program has not produced much in the way of substantive policy analyses or produced information in formats that are useful and accessible to the wide range of individuals and organizations who desire information about climate variability and change and its relationship to different concentrations of greenhouse gases in the atmosphere. It has not produced information that will assist decision-makers at the federal, state, and local level in the development of response, adaptation and mitigation strategies.

H.R. 906 directs the Program to develop assessments of vulnerability to climate change and to develop policy assessments that will evaluate alternative strategies for responding, adapting, and mitigating climate change that is projected to occur under different atmospheric concentrations of greenhouse gases.

The components of the core science programs of the USGCRP continue to produce useful scientific information and better, more refined understanding of the climate system. H.R. 906 does not eliminate these programs and activities. Instead, H.R. 906 shifts the emphasis to the production of information that is needed to develop strategies to cope with current climate change and to mitigate greenhouse gas emissions to reduce the magnitude of future climate impacts. To ensure the Program produces policy-relevant information, H.R. 906 includes a review of the Program by the National Governors Association's Center for Best Practices.

The major scientific debate is settled. Climate change is occurring. It is impacting our nation and the rest of the world and will continue to impact us into the future. The USGCRP should move beyond an emphasis on addressing uncertainties and refining climate science. In addition the Program needs to provide information that supports action to reduce vulnerability to climate and other global changes and facilitates the development of adaptation and mitigation strategies that can be applied here in the U.S. and in other vulnerable locations throughout the world.

Witnesses

Dr. Philip Mote, Office of Washington State Climatologist and Affiliate Professor at the University of Washington

Dr Philip Mote is a research scientist at the University of Washington, in the Climate Impacts Group (CIG), and an Affiliate Professor in the Department of Atmospheric Sciences. In addition, Dr. Mote works as a consultant at Northwest Research Associates specializing in the dynamics of the tropical upper troposphere and lower stratosphere. He received his B.A. in Physics from Harvard University in 1987 and completed his doctorate in Atmospheric Sciences at the University of Washington in 1994. His research interests include Northwest climate and its effects on snowpack, streamflow, and forest fires. A frequent public speaker, he has also written over fifty scientific articles and edited a book on climate modeling, published in 2000. In 2003, Dr. Mote became the Washington State Climatologist.

Dr. Michael MacCracken, President of the International Association of Meteorology and Atmospheric Sciences of the International Union of Geodesy and Geophysics

Dr. Michael MacCracken is the Chief Scientist for Climate Change Programs with the Climate Institute in Washington DC. He received his B.S. in Engineering degree from Princeton University in 1964 and his Ph.D. degree in Applied Science from the University of California Davis/Livermore in 1968. His research has included numerical modeling of various causes of climate change (including study of the potential climatic effects of greenhouse gases, volcanic aerosols, land-cover change, and nuclear war) and of factors affecting air quality, including photochemical pollution in the San Francisco Bay Area and sulfate air pollution in the northeastern United States.

From 1993-2002, Dr. MacCracken was on assignment as senior global change scientist to the Office of the U.S. Global Change Research Program (USGCRP) and served as its first Executive Director from 1993-1997. From 1997-2001, he served as Executive Director of the USGCRP's National Assessment Coordination Office, which coordinated the efforts of 20 regional assessment teams, 5 sectoral teams, and the National Assessment Synthesis Team that prepared the national level reports that were forwarded to the President and to the Congress.

Dr. Jack Fellows, Vice President at the University Center for Atmospheric Research (UCAR)

Dr. Jack Fellows is the Vice President for Corporate Affairs at UCAR and the Director of UCAR's Office of Programs (UOP). As Director of the UOP, he is responsible for a broad range of scientific and educational programs that serve the atmospheric and related research and education community. Dr. Fellows received his Ph.D. in Civil Engineering from the University of Maryland.

Dr. Fellows began his career as a research faculty member at the University of Maryland, where he conducted research in the use of satellite data in hydrologic models. In 1984, he spent a year in the U.S. Congress as the American Geophysical Union's Congressional Science Fellow.

While in Congress, he split his time between the personal office of George Brown (D-CA) and the House Science and Space Subcommittee and worked on a range of policy issues, including water resources, satellite remote sensing, and general oversight of federal research and development funding. After this, he spent 13 years in the Executive Office of President's Office of Management and Budget (OMB) overseeing budget and policy issues related to the National Aeronautics and Space Administration, the National Science Foundation, and Federal-wide research and development programs. During this period with OMB, he helped to initiate the U.S. Global Change Research Program and to coordinate funding from the participating federal agencies in the new interagency research program.

Mr. Franklin Nutter, President of the Reinsurance Association of America and Member of UCAR's Board of Trustees

Mr. Franklin Nutter has been an active member of the UCAR Board of Trustees and prior to that served on the NCAR Advisory Council and the Weather Coalition, a group of private companies, associations, and universities advocating for the advancement of weather research and applications. He received his Juris Doctorate from the Georgetown University Law Center and a bachelor's degree in economics from the University of Cincinnati.

Mr. Nutter has been President of the Reinsurance Association of America (RAA) since May of 1991. Through his involvement as President, he coordinated events with the UCAR Corporate Affiliates Program. During his distinguished career in the insurance and reinsurance industries, Mr. Nutter has promoted the use of weather and climate models and has helped to advance the atmospheric sciences. An expert on societal impacts of severe weather and climate change, Mr. Nutter has been called upon to address the U.S. Climate Change Science Program Planning Workshop, the Pew Center Workshop on the Timing of Climate Change Policies, and the AGU's Coastal Hazards Reduction Workshop.

Ms. Sarah Bittleman, Office of the Governor of Oregon, Theodore R. Kulongoski, on behalf of the Western Governors Association

Ms. Sarah Bittleman is the Director of the Governor of Oregon's Washington D.C. office. She assumed this position a year ago after having spent 10 years on Capitol Hill as a staffer for both Republicans and Democrats, in both the House and the Senate and in personal offices as well as the Committee on Energy and Natural Resources. She followed the climate change debate closely in all her positions on the Hill, most recently drafting a forest carbon sequestration bill as the Natural Resources Counsel for Senator Ron Wyden of Oregon. Ms. Bittleman has a Masters in Public Administration from East Carolina University as well as a JD from Tulane University in New Orleans.

Dr. James Mahoney, Environmental Consultant

Dr. James Mahoney currently serves as an environmental consultant, providing scientific and professional advice to a number of organizations. From April 2, 2002 to March 30, 2006 he was Assistant Secretary of Commerce for Oceans and Atmosphere, and Deputy Administrator of the

National Oceanic and Atmospheric Organization (NOAA). During this period, Dr. Mahoney served as the Director of the U.S. Climate Change Science Program (CCSP).

Dr. Mahoney received a B.S. degree in Physics from LeMoyne College and a Ph.D. degree in meteorology from the Massachusetts Institute of Technology (MIT). His career has involved more than forty years of continuous focus on environmental management and the earth sciences, with an emphasis on the atmospheric, climate, hydrological and oceanographic areas. After completing his Ph.D., he joined the Faculty of Public Health at Harvard University, in its Department of Environmental Health Sciences. Dr. Mahoney entered the public service in 1988 as director of the National Acid Precipitation Assessment Program, working in the Executive Office of the President. NAPAP was charged with recommending sound approaches to controlling acid rain effects, while providing for continued energy and economic security for the nation.