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Submitted on Behalf of
The Western Governors' Association

Submitted to
House Committee on Science and Technology

Reorienting the U.S. Global Change Research Program Toward a User-Driven Research Endeavor

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Chairman Gordon and members of the Committee, my name is Sarah Bittleman, and I am the Director of Oregon Governor Theodore Kulongoski's Washington, D.C. Office.

Thank you for the opportunity to address the Committee today regarding H.R. 906, The Global Climate Change Research Data and Management Act of 2007. I appear before you on behalf of the Western Governor's Association (WGA) – an independent, nonprofit organization representing the governors of 19 Western States, American Samoa, Guam and the Northern Mariana Islands. Through their Association, the Western governors identify and address key policy and governance issues in natural resources, the environment, human services, economic development, international relations and public management.

Before making specific comments about the U.S. Global Change Research Program and the legislation before you today, I would like to thank the sponsors of H.R.906, Representative Udall and Representative Inglis, for both their bi-partisan effort on this bill, and their outreach to the Western States in its development.

Last year, WGA worked closely with this Committee on the development and passage of legislation authorizing the National Integrated Drought Information System Act of 2006 (NIDIS). There was a high degree of bi-partisan cooperation on this Committee, and in particular among the sponsors of the NIDIS bill—Mr. Udall and then-Chairman Hall—and this cooperation undoubtedly led to the successful passage of that bill. The Governors are very pleased to see this spirit of cooperation from the Committee continuing with your efforts on H.R. 906.

Additionally, the Governors want to thank Mr. Udall and Mr. Inglis for their outreach to the Western States in soliciting input into the development of H.R. 906. WGA appreciates the specific effort to make this bill relevant to, and address the needs of, the States.

Mr. Chairman, with the efforts occurring in Oregon and many western states to address climate change, the Western Governors believe it is not only appropriate, but also is necessary to reorient and fully fund the U.S. Global Change Research Program to make it more user-driven. Since the time the USGCRP was enacted in 1990, the debate on climate change in this country has largely focused on whether the world is warming and whether humans are the cause of that warming. The current science indicates that the earth is warming and that concentrations of atmospheric CO2 have increased significantly. In a 2005 statement, the United States National Academies of Science concluded, "the scientific understanding of climate change is now sufficiently clear to justify taking prompt action." Eleven National Academies of Science from the major nations of the world, including the United States, the United Kingdom, Japan, China, Russia, and others, have agreed that science supports the fact that climate change is occurring, is influenced by human activity, and presents risks that should be addressed through changed practices and preparation for changed conditions.

The U.S. has spent considerable dollars on understanding the science of climate change, and we must now look to addressing and adequately funding the issue of adaptation. The focus of the USGCRP research must now move with greater focus to help states, tribes and local governments understand what that means: How will climate change manifest itself in different areas of the country? What impacts can we expect at the state and local levels? How can we prepare for the change in an effort to avoid or mitigate the impacts? How can we most effectively implement adaptation measures given that many of them will require a long lead-time?

Impacts from warming that have been projected for the West include the following:

- **Smaller snowpacks**—winter precipitation could fall as rain instead of snow; periods of snowpack accumulation could be shorter; and snowpacks could be smaller, which has serious implications for reservoir storage.

- **Earlier snowmelt**—warming earlier in the year could melt snowpacks sooner, further increasing the length of time between peak water flows and peak water demands from cities, farmers, utilities, etc., requiring more reservoir storage to capture the earlier runoff.

- **Rainfall—**it is expected that precipitation will come more in the form of rain than snow, but it is not understood whether overall precipitation will increase or decrease, or what the temporal and spatial changes of precipitation will be.

- **Flood-control releases**—water managers may be forced to make changes in reservoir operations and rule curves.

- **More extreme flood events**—extreme events could be more common, causing more frequent and larger floods. In some cases, existing flood control 'rule curves' should be reformulated.

- **Floodplain management—**extensive efforts will be needed to better map and define floodplains, and interaction with local governments will be required to shape the direction of future development in floodplains.

- **Receding glaciers**—some scientists have suggested Glacier National Park could be void of glaciers by 2030 as a result of warming.

- **More evaporation and dryness**—higher temperatures could increase evaporation from streams and reservoirs, soil dryness, and the need for supplemental water for crops and other plants.

- **Less groundwater**—less availability of surface water supplies may lead to increased pumping from groundwater aquifers, further stressing groundwater supplies and hydraulically connected surface water supplies.

- **More droughts**—more intense, frequent, and longer-lasting droughts could result.

- **More wildfires**—there could be an increase in the number and severity of wildfires and an extended wildfire season.

- **More pests and disease** – there could be an increase in the types of disease and pests that exist and proliferate which would adversely impact human public health as well as forest and agriculture health.

- **Water quality challenges**—diminished streamflows during drought could result in less dilution of discharges; sediment loading from storm events that follow wildfires; saltwater intrusion along the coast resulting from rising sea levels; and warmer lake temperatures leading to algae blooms could follow.

- **Sea level rise**—investments in infrastructure to adapt to rising sea levels will be necessary.

- **Hydroelectric generation**—climate changes that alter overall water availability and timing could reduce the productivity of hydropower facilities; changes in the timing of hydroelectric generation can affect the value of the energy produced.

- **Water-borne shipping**—decreases in river flows could reduce the periods when navigation is possible; increase transportation costs; and increase conflicts over water allocated for other purposes.

- **Ecosystems**—natural ecosystems and wildlife have limited ability to adapt or cope with climate changes that occur over a relatively short time frame, which could lead to irreversible impacts, such as additional species extinctions.

- **Recreation impacts**—due to lower lake and stream flow levels, recreation opportunities and economies could be significantly reduced.

Given the existence of a number of variables, it is not currently possible to predict or model with any precision if, how and when a particular area within the region may be impacted. More flexible institutional arrangements are needed in order to adapt to changing conditions related to climate change and other existing stresses as well.

It must be recognized that there is already substantial stress on the water sector today even in the absence of climate change. There are many watersheds that are already fully-appropriated, and new stresses are coming from population growth, land use changes, and water needs for instream uses, including those necessary to meet federal laws such as the Endangered Species Act and the Clean Water Act. In some areas, the new demands may cause major shifts in water supply and water rights. Climate change may pose additional stresses and could result in thresholds being reached much earlier than currently anticipated.

The Western Governors stated in their 2006 report, *Water Needs and Strategies for a Sustainable Future,* that Congress and the Administration should fund research for improving the predictive capabilities for climate change, and assessment and mitigation of its impacts. Additionally, given the complex climatology in the West, it is important that climate change modeling be conducted at a much finer resolution, e.g. watersheds and subwatersheds. It is also important that the federal government implement research funding recommendations associated with Goals 4 and 5 of the 2003 CCSP Strategic Plan, including the area of increased partnerships with existing user support institutions, such as state climatologists or climate centers, regional climate centers, agricultural extension services, resource management agencies, and state and local governments.

Consistent with their report, the governors believe Title I of H.R. 906 would appropriately focus the research of the U.S. Global Change Research Program on improving the understanding of global climate change, responding to the information needs of communities and decision-makers, and providing periodic assessments of the vulnerabilities of the U.S. and other regions to global climate change. Some states are creating their own climate change research centers, including Oregon. It is important that the program created under H.R. 906 integrates and supports the efforts of state and regional climate research centers.

Additionally, Western Governors stated in their report that the federal agencies must continue and expand funding for data collection networks and activities necessary for monitoring, assessing, and predicting future water supplies. To the degree Title II of the bill will lead to such improvements to data management, the governors believe it is appropriate.

One recommendation that we would make for the bill is to amend it to address the need for a National Climate Information Service in the context of USGCRP. Such a service could be the focal point for coordination of climate activities across the federal

government, and could be the organization charged with such responsibilities as making sustained climate observations and assessments about the state of the climate and providing climate outlooks and projections (similar to an early warning system). Additionally, the NCIS could provide routine assessments of climate impacts and vulnerabilities and develop relevant products and services for decision- and policy-makers. The National Integrated Drought Information System (NIDIS) that you authorized the last year would thus become an important component of this larger climate information system.

On May 4 of last year, the Western Governors' Association testified before your committee in support of the NIDIS bill stating:

> *No systematic collection and analysis of social, environmental and economic data focused on the impacts of drought within the United States exists today. Understanding these impacts of drought will empower users and expand the comprehension of the full magnitude of drought losses. By so doing, it will encourage local, state and federal officials to increase efforts in drought planning, preparation, and mitigation…The National Integrated Drought Information System will allow policy-makers and water managers at all levels of the private and public sectors to make more informed and timely decisions about water resources in order to mitigate or avoid the impacts from droughts.*

These same statements could also be applied to the broader needs of climate data and research. Decision-makers at all levels of government and in the private sector need reliable and timely information to understand the possible impacts and corresponding vulnerabilities that are posed by climate change so they can plan and respond accordingly. The Western Governors' Association supports H.R. 906 as an effort to move the nation's climate change research program in this direction.