

## Testimony to the House Subcommittee on Energy and Environment “Expanding Climate Services at NOAA: Developing the National Climate Service”

Philip W. Mote, PhD

I have been invited here to speak on behalf of the nine university-based, regionally-focused research teams known as RISAs. RISA stands for Regionally Integrated Sciences and Assessments, supported by NOAA’s Climate Program Office. Most of the RISA teams have contributed to my oral and written testimony.

RISAs have been providing climate services since the first RISA, our own Climate Impacts Group at the University of Washington, was established in 1995 by Ed Miles. Indeed, our group with Ed as lead author wrote a paper on national climate services in 2006 that helped start the current discussion about climate services.

Climate services provide the use-inspired climate science needed to support decisions that plan for and cope with climate variability and change. With steady progress in science, vigorous growth in demand for actionable climate information, and the urgency of coping with a changing climate, the time for a national climate service has arrived.

Selecting from dozens of possible examples, I provide here a few examples of climate services RISAs provide, focusing for brevity on water resources. Early on, the Northwest and Pacific RISAs helped agencies like Seattle Public Utilities and Pacific island water resource managers apply seasonal forecasts to estimates of water supply. Western and southeastern RISAs have engaged in drought planning and monitoring, and post-drought analysis. CLIMAS (the southwest RISA) worked with state agencies in Arizona on the Arizona Drought Preparedness Plan. The RISA in the Carolinas developed a drought monitoring tool to monitor low-flow triggers. Looking decades into the future, RISA scientists analyze the effects of climate change on small rivers that supply urban needs, like the Cedar River for Seattle, and on the large basins of the Colorado and Columbia Rivers. Such projections are now routinely being used in long-range planning by municipal and state governments in partnership with RISAs, as in California, Colorado, and Washington. Western RISAs have worked for a number of years with the U.S. Bureau of Reclamation and others to understand uses of climate information.

These and other examples illustrate the importance of partnerships RISAs have – with NOAA offices and other federal agencies, with regional climate centers, state climatologists, extension, tribes, state and local governments, NGOs, and the private sector. Each has unique contributions, perspectives, and responsibilities – RISAs, based at universities, emphasize user-oriented research and outreach. In a National Climate Service, user-oriented research would be vital and RISAs would

play a critical role. An example of what an NCS could accomplish: redrawing flood plain maps with a rigorous assessment of how climate change may be changing flood risk, a.k.a. the 100-year flood. Federal labs provide climate model output, university researchers run hydrologic models, political science experts craft flexible policies to incorporate local concerns, RISAs and state climatologists engage emergency managers, land use planners, and other local officials.

Climate services are already provided in various forms by the nine RISAs, by regional climate centers, private consultants, state climatologists, extension, the National Weather Service, and others, but the efforts fall short of what is needed. For one thing, the RISA program needs to be expanded to serve all 50 states plus the territories. And funding for the RISA program is so thinly stretched that we cannot meet user demand.

Building on a 2001 NRC report, the RISAs came up with ten key elements that we believe will be critical to an effective National Climate Services (NCS); I’ve condensed it to five for brevity.

1. Needs of stakeholders must be foremost, and are best understood at the regional scale
2. NCS must recognize that decision contexts need climate information and much more
3. Because capability must span a range of space scales, implementation must be national but with strong regional and state components, including universities, to assist regional and state-level decisions
4. NCS design should be flexible and evolutionary, and be built around effective partnerships
5. NCS success requires that an effective larger national (and international) climate science enterprise, including observations, exists to support it

The RISAs show that regional university-federal partnerships can make unprecedented progress in providing climate services, and we succeed because we are backed up by a world-class federal science enterprise, a global climate observing system, data centers, and global and regional climate modeling. Climate knowledge, properly conveyed and used, will help Americans deal with, and indeed prosper, in the face of future climate variability and change. Thank you for allowing me and my colleagues to share our thoughts with your subcommittee today.

[pmote@coas.oregonstate.edu](mailto:pmote@coas.oregonstate.edu) 541-913-2274

May 5, 2009