MEETINGS

Developing Plans and Priorities for Climate Science in Service to Society

World Climate Research Programme (WCRP) Open Science Conference; Denver, Colorado, 24–28 October 2011

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The WCRP Open Science Conference (OSC), which had the theme "Climate Research in Service to Society," was held to consult with the international community of experts on future plans and priorities for the WCRP. More than 1900 participants, including 541 young scholars from 86 nations and 300 scientists from developing nations, made the conference a success.

Several major scientific priorities emerged from OSC. These include (1) the need for prediction of the Earth system, bridging the physical climate system with biogeochemistry and the socioeconomic and humanity sciences, in a program such as the "Future Earth-Research for Global Sustainability" initiative of the International Council for Science; (2) capitalizing on the opportunity, provided by new satellite observations, to make a major leap in understanding of clouds and aerosols and their contributions to climate sensitivity; (3) the need for skillful climate information on regional scales for Global Framework for Climate Services; (4) the importance of quantifying true uncertainty in climate predictions; (5) defining the challenges and opportunities involved in predicting how the forced anthropogenic component of climate change will modify the natural modes of climate variability over the coming decades; (6) the increasing importance of establishing the predictability of polar climate, with possible opening of the Arctic, and the importance of international policy for commercial shipping and extraction of natural resources; (7) the need to better understand the causes of extreme events and to conduct attribution studies in near real time; (8) tackling the challenges to providing improved predictions of future regional sea level change; and (9) the need to train and empower the next generation of climate scientists.

Dialogue with young scholars on future education and research opportunities and how to effectively communicate climate science was a significant component of OSC. A major emerging theme was the need for actionable science. Decision makers need climate and other scientific information to guide decisions. Future water availability in a region, for example, may guide the siting of a new water treatment plant that will be operational for decades. The demand for and importance of understandable information about climate is increasing, especially as extreme weather and climate events and their adverse impacts on natural ecosystems and global economic development increase in frequency and severity.

The need for actionable science was also explored with a panel of experts from the private sector: British Petroleum, Northrop Grumman, Zurich Financial Services, Computer Sciences Corporation, and the Weather Channel. They discussed how scientists and private enterprise can better work together toward actionable information, concluding that while gaps exist today between information needs and availability, those gaps are rich with opportunity.

The general consensus among the participants was that WCRP and its affiliate network of scientists and projects must move beyond understanding and predicting the Earth's climate system to providing the resulting knowledge and information in ways that yield practical solutions to the complex and interrelated challenges required of a sustainable Earth for future generations. More information on the conference is available at http://conference2011.wcrp-climate.org.

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