

WCRP OPEN SCIENCE CONFERENCE

CLIMATE RESEARCH IN SERVICE TO SOCIETY

24–28 October 2011, Denver, Colorado, USA

conference2011.wcrp-climate.org



Interview with Deliang Chen, Executive Director of the International Council for Science



How do you envision the WCRP Open Science Conference within the ICSU's Earth System Visioning process?

As WCRP is aware of ICSU, in cooperation with the International Social Science Council (ISSC), started an extensive consultative Visioning Process (<http://www.icsu-visioning.org/>) in 2009 aimed at developing options for a single, holistic international strategy for integrated, policy relevant Earth System research. The process led to the

identification of five [Grand Challenges for Earth System Science for Global Sustainability](#). Then at a meeting of key stakeholders in June 2010 it was established that a new overarching structure for Earth System Research was needed for integrated research to respond effectively to those Grand Challenges. The 3rd Earth System Visioning meeting was held in February 2011 when ICSU, ISSC and the Belmont Forum, representing the International Group of Funding Agencies for Global Change Research (IGFA), proposed a new ten-year research initiative on Earth System Research for Global Sustainability. The Initiative will provide a unified strategy and structure to address the Grand Challenges in an integrated way, mobilising the scientific community, funders, operational service providers and users as well as delivering knowledge to enable societies to meet their sustainable development goals in the next decade.

The initiative will be a joint integrated research strategy that is expected to unify most of the existing global environmental change research structures (including DIVERSITAS, IGBP, IHDP, ESSP and possibly some components of WCRP), and fully engage START. The development of the initiative has entered a new phase that will see the current research structures transition to the unified framework. A Transition Team is being established to guide the development process in the lead-up to pre-launch at the Planet Under Pressure conference in March and a launch the UN Conference on Sustainable Development (Rio+20) in June 2012.

The upcoming WCRP Open Science Conference will provide an important platform to bridge the international climate research community with the larger Earth System Research for Sustainability initiative. This initiative is to be built on four pillars: researchers, funders, operational service providers and users, and WCRP is well positioned to make important connections with the climate research community and with operational service providers, such as WMO. More specifically, the conference, which will be held during the initiative's design phase, should provide an excellent opportunity for the climate research community to discuss the scientific challenges linked with and relevant to the Grand Challenges, and to identify research activities that will contribute to the design and implementation of the new global initiative. In addition, in the near future, ICSU will engage with WMO and WCRP to explore strengthening climate services.

Which outcome does ICSU anticipate/expect from the WCRP Open Science Conference in relation to the Grand Challenges?

The five Grand Challenges identified by the visioning process include Forecasting, Observing, Confining, Responding, and Innovating. They cover a diversity of topics but are united as elements of a systems approach that examines how the coupled social-environmental system is changing and what actions and interventions may alter environmental and social outcomes.

Progress on each the challenges and the research questions for scientific communities are urgently needed. Research communities, including the climate research community, have unique capacities, which can contribute to finding solutions to these challenges, but the nature of the challenges will necessarily require scientists to work with partners outside their own research community.

Over the last few decades, the climate research community has made tremendous progress in terms of Observing and Forecasting the Earth System with a focus on the physical aspects of the global climate system, while the other three challenges now need more attention if we are going to provide useful solutions to society. ICSU

expects that the outcomes of this conference will help identify the high priority research that must be carried out to address those broadly-accepted Grand Challenges in Earth System science for global sustainability and will mobilize climate scientists to work with a broad range of scholars in other sciences when pursuing that research. To address needs at global, regional, national and local scales requires a focus on new research priorities and on new ways of doing and using research.

The scientific programme of OSC has been developed in order to help in defining the future of WCRP, which challenges and gaps do you identify in relation to the future ICSU's goals?

While climate science must continue their excellence research, it should also strengthen its links to the wider community. WCRP should be commended for such efforts within the ESSP and with its sister GEC programmes. However, gaps exist in the larger community regard to taking a fully-fledged system approach; it is hoped that the climate community will contribute to realizing this. The study of the Earth System—the social and biophysical components, processes and interactions that determine the state and dynamics of the Earth including its biota and human occupants—has reached a point of transition. For the past two decades, our priority has been to understand the functioning of the Earth System and, in particular, the impact of human actions on that System. Science has advanced to the point that we now have a basic understanding of how human actions are changing the global environment and a growing understanding of how those changes will affect society and human well being.

Our existing knowledge provides a useful basis for vital activities needed to manage specific parts or features of our world in change and transition, but it falls well short of what can be considered integrated solutions. To enhance our understanding of the coupled social-environmental system and to provide integrated solutions, we need to:

- Mobilise the scientific community, funders, operational service providers and users to address the Grand Challenges.
- Develop new methods for doing research and for communicating results (involving innovation in research approaches, participatory practices and collaborations), which would allow stakeholders to be empowered, informed and motivated by the research process, so they would take effective action.
- Increase our capacity to undertake interdisciplinary and trans-disciplinary research, including the development of a new generation of scholars who will take a systems approach to the challenges of global sustainability.