

World Climate Research Programme
Progress report on contributions to the NWP
(16 april 2009)

WCRP aims to improve the scientific knowledge delivered to policy and decision makers in support of climate change adaptation, mitigation and disaster risk management. A primary focus of WCRP is improving climate modelling and prediction and working with partners to ensure that the products are as skillful as possible and useful to the end-user. WCRP also supports capacity-building exercises to help train climate scientists in the development and application of modelling and downscaling techniques as well as engaging with end-users to improve their ability to interpret the available data and to understand the possibilities and limitations of climate change projections.

Improving climate models and projections

Key to improving the climate information in support of mitigation, adaptation strategies and risk management is enhancing and refining global climate models, as they form the basis of all regional and local simulations. WCRP has many ongoing activities to improve global climate models and is actively involved in designing the next generation climate change experiments and the scenarios to drive them for the next IPCC assessments.

The WCRP Climate Model Intercomparison Project (CMIP3) archive has allowed researchers from around the world to access and benefit from the climate simulations produced in support of the IPCC fourth assessment. Of the nearly 1200 studies that have used this archive, over 100 have a focus on adaptation.

Regional Climate Downscaling

Another very important WCRP contribution to the NWP has been facilitating advances in regional climate downscaling. A WCRP Task Force on this topic has been formed recently to summarize the shortcomings, difficulties and scientific basis of existing regional downscaling methods to serve as guidance for the climate change impact assessment community; and to develop a framework for evaluation and intercomparison of regional downscaling techniques to foster more critical analysis of available methods and quantify the uncertainties. The ultimate aim is to produce more reliable and detailed regional climate information, including current and future assessments of climate variability and change, for the design of effective strategies for adaptation to climate change. A first WCRP workshop on Evaluating and Improving Regional Climate Projections was held in Toulouse, France, 11-13 February 2009. A second workshop on this topic and regional climate modelling more generally will take place in Lund, Sweden

Decadal climate predictions

Planning for dams, roads, hospitals and other major infrastructure and energy investments is done on decadal timescales. Hence, climate predictions ten or twenty years in advance would be of great value in making those plans compatible with climate change and in calculating the risks associated with climate change. WCRP has launched a new cross-cutting activity to investigate the potential for climate predictions on decadal timescale which will enable human society to better manage and adapt to the risks of climate impact.

Capacity Building

To build capacity for climate research and applications among scientists, national meteorological services and other users of climate products, WCRP, together with the International Centre for Theoretical Physics (ICTP), has organized several major training seminars. The Interpreting Climate Change Simulations seminar held in November 2007 in Trieste, Italy, targeted scientists

and practitioners from developing and least-developed countries to demonstrate how to make use of the climate simulations available in the WCRP-CMIP3 archive. For the African continent and regions within Africa, WCRP has already created the 'multi-model archive component' of the African Climate Atlas, which is an interactive Web page providing a user-friendly and simple tool for plotting images and making available subsets of data from the IPCC AR4 climate change model dataset, for the period needed and over regions that can be defined. At the two-week Fourth ICTP Workshop on Theory and Use of Regional Climate Models (RCMs) held in March 2008 in Trieste, Italy, young scientists from developing countries — in total over 130 participants — learned to use regional climate models for their own climate change and seasonal prediction studies. Above all, they learned to understand the uncertainties associated with RCM-based regional climate change projections.