

CORDEX – a global collaborative initiative

Global Climate Models can provide us with projections of how the climate of the earth may change in the future. These results are the main motivation for the international community to take decisions on climate change mitigation. However, the impacts of a changing climate, and the adaptation strategies required to deal with them, will occur on more regional and national scales. This is where regional climate downscaling, and the CORDEX programme, has an important role to play by providing projections with much greater detail and more accurate representation of localized extreme events.



Globes illustrating the 14 CORDEX domains.

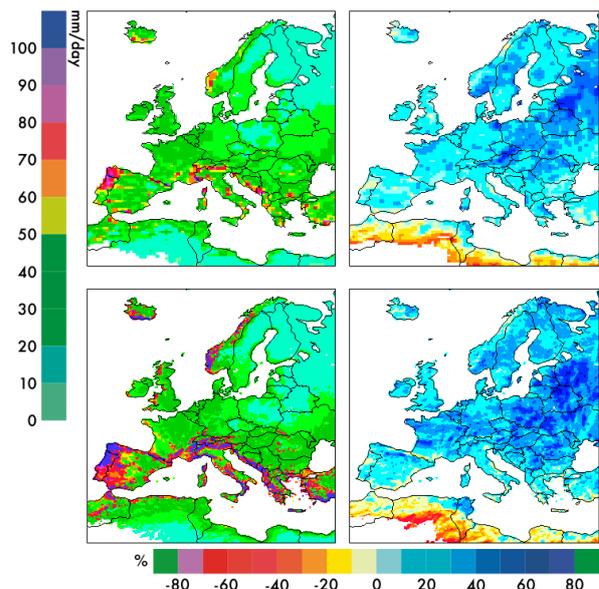
The Coordinated Regional Climate Downscaling Experiment (CORDEX) is a global collaborative initiative that aims to develop the knowledge of regional downscaling of global climate scenarios, and provide and develop detailed, regional climate information necessary for vulnerability, impact and adaptation studies at local and regional levels. There is an increasing need for reliable regional climate information that is both scientifically rigorous but also communicated in a manner that all potential end users, from water managers in sub-Saharan Africa to city planners in Manila or forestry owners in Sweden, can utilize for effective impact and adaptation planning. The CORDEX community is working towards meeting this challenge as part of the World Climate Research Programme (WCRP) and in collaboration with other global change initiatives and partners across the world.

BUILDING CAPACITY

CORDEX is truly a bottom-up initiative driven by the regional groups who have come together in an effort to provide regional climate information to end users across the globe. Building scientific capacity in developing and transition regions is also a key CORDEX goal. Knowledge exchange across CORDEX domains - there are now 14 domains covering all global land areas - is generated by training workshops and collaborative publications. For example, the CORDEX-Africa team developed an analysis and training program to provide an initial assessment of CORDEX output that is regionally focused and prioritized to Africa's knowledge needs. This resulted in not just 9 peer-reviewed publications led by young African scientists but the development of partnerships to provide high quality regional climate information to the African impact modelling and end user communities.

HOW IS CORDEX INTERACTING WITH THE HYDROLOGICAL COMMUNITY?

There are now nearly 50000 quality-checked open datasets available from CORDEX regional climate simulations for any interested users. Data is available at three resolutions, 12.5, 25 and 50km dependent on domain, with the greatest volume of data at the 50km resolution. The integration of this data into large scale hydrological modelling is in action within SMHI, exemplifying the great potential use of this resource to the hydrological community. CORDEX aims to enhance the dialogue with end-users so as to meet the growing demand for tailored regional climate information. Here, greater interaction between the CORDEX and hydrological modelling community can only prove hugely beneficial, leading to greater protection for those vulnerable to the impacts of a changing climate across the globe.



EXTREME RAINFALL IN EUROPE : Results using Rosby Centre at SMHI regional climate model, RCA4 at 50 km (upper) and at 12.5 km (lower) resolution for 1971-2000 (left) and change up to 2071-2100 in the scenario RCP8.5 (right). Precipitation extremes defined here as high daily amounts that statistically will return no more than once every 20th year.

ICRC-CORDEX 2016

The International Conference on Regional Climate-CORDEX 2016 (ICRC-CORDEX 2016), was held in Stockholm 17th - 20th May 2016, and brought together the international community in regional climate research focusing on high resolution climate information, and its applications to the vulnerability, impacts and adaptation community and the full spectrum of potential end users of regional climate information. This event offered those in the water sector an opportunity to find out the latest advances in regional climate science, hear about ongoing hydrological applications and build new collaborations with partners from all corners of the globe. Additionally, the ICRC-CORDEX 2016 offered a platform for further capacity development, training and knowledge exchange for developing nation scientists together with the opportunity to develop existing, or build new, partnerships with regional and international partners. For more information on ICRC-CORDEX 2016 see www.icrc-cordex2016.org

NEXT STEPS FOR CORDEX

The CORDEX community has recognized that addressing some regional downscaling scientific challenges might be problematic within the general CORDEX framework that employs standard sets of simulations for large domains often encompassing

entire continents and surrounding regions. The idea thus emerged to develop more targeted experimental setups, called “Flagship Pilot Studies (FPS)”, which would enable the CORDEX communities to provide much greater “added value”. Such studies could provide much higher resolution climate information over a megacity at risk from flooding for example, offering great potential for interaction with the impact modelling, adaptation planning and end user communities. Capacity building and knowledge exchange will continue within CORDEX with a number of training and analysis workshops planned on domain, regional and cross-domain levels.

INTERNATIONAL PROJECT OFFICE FOR CORDEX

Due to their proven competence in climate modelling, SMHI was selected by the World Climate Research Programme (WCRP) as host institution of the International Project Office for CORDEX (IPOC). The IPOC supports the development of regional climate science and projections of future climate, facilitates cooperation between regions and countries, and promotes knowledge exchange and capacity building with a particular focus on developing regions. For more information on CORDEX see www.cordex.org

