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WCRP CORDEX Coordinated Regional Climate Downscaling Experiment News

White Paper:
Future scientific challenges for CORDEX

The CORDEX Science Advisory Team (SAT) has developed a White Paper (WP) with the purpose to point out scientific challenges in regional climate modelling for a better informed decision making process in regions and setting the basis for the CORDEX science plan. The WP has been open for comments to engage the community in the development of CORDEX and regional climate science.

Link to the White Paper Future Scientific Challenges

To contribute to better informed decision making in regions is also a major contribution to the 4th Scientific Objective of the WCRP Strategic Plan: Bridging to society.

The CORDEX framework guides a coordinated effort to focus on the **CORDEX Scientific Challenges** which can be found on the Flagship Pilot Studies web page:

- Added value of downscaling
- Convection-permitting modelling
- Assessing the role of the human elements on the regional climate change signal
- Benefits of coupled regional climate models

In the White Paper we first outline the more general purposes, some of the main achievements so far and then proceed to some key emerging issues:

- **Smaller domains with finer resolution**; how do we find a common and robust set up of 'convection permitting resolution domains' in order to improve our understanding of the local scale signals and provision of actionable cliamte information for decision making?
- **Increasing complexity**; Earth System Models (ESMs) and new scenario frameworks (SSP-RCPs) implies both challenges in form of computational requirements but also possibilities to address societal measures impact on regional climates. How do we compromise between complexity, resolution and domain size?
- **Increasing spatial resolution**; Global Climate Models (GCMs) move towards very high resolutions - what does that imply for the Regional Climate Models (RCMs) and how do we foster interaction between modeling groups?
- **Exascale computing**; How do we adapt models to and profit from new

computing architecture and machine learning strategies?

- **Data and Infrastructure**; More simulations with higher resolution requires more archiving capacity as well as maintenance and perhaps also new tools for analyses. Open Access is essential. Is ESGF the answer also in the future?

Additional papers will follow; one on CORDEX in the new WCRP structure, one on bridging the gap between climate science and society and one on Empirical Statistical Downscaling (ESD) strategies.

Link to the White Paper Future Scientific Challenges for CORDEX

Feel free to forward this newsletter to interested colleagues.

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