



Global and regional climate simulations over Africa: similarities and differences

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The CORDEX project (Coordinated Regional Downscaling Experiment) aims to produce detailed regional climate data for all land regions of the world in support of climate change impact and adaptation research with the primary focus on Africa. During last year more and more regional climate simulations for the CORDEX-Africa domain became available and the first analysis of the CORDEX-Africa results shows that regional simulations and their respective driving global ones may project contradicting climate change signals in precipitation. In addition, it was found that different RCMs downscaling the same AOGCM may also produce contradicting future projections in precipitation. Interpretation of such contradicting signals in global and regional ensembles of climate simulations is a challenging task and a detailed and process-oriented analysis is required.

We analyze global and regional climate simulations over Africa in order to see on what aspects of possible future climate projections in precipitation both global and regional simulations agree and on what not. Several regional ensembles are constructed by combining different global and regional model pairs, for example - one AOGCM downscaled by a few RCMs and a few AOGCMs downscaled by one RCM. Such ensembles help to clarify what is more important for regional climate projections in precipitation over the African continent: large-scale signals from the driving AOGCMs or local-scale process defined by RCM physical formulation. The main focus is on an attempt to identify key processes, which can be responsible for contradicting changes in precipitation between regional and global models and between different regional models driven by the same AOGCM.