



Determining southern Africa's climate characteristics that are essential for the identification of the impacts of future land use changes on the regional climate

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While the process of anthropogenic emissions is fairly well established in state-of-the-art climate model simulations, possible impacts of land use changes on the climate are mostly neglected in long-term climate simulations up to now. However, especially over Africa's semiarid regions land surface feedbacks seem to have a significant influence on the regional climate. To further investigate these effects on the regional and local climate the Max-Planck-Institute for Meteorology is applying the regional climate model REMO over southern Africa with a focus on South Africa and Namibia. This work is embedded in the framework of the BIOTA South project, which is an interdisciplinary research project mainly focusing on biodiversity dynamics along a transect in the western parts of Namibia and South Africa.

Within the BIOTA South project three IPCC climate scenario simulations at a high spatial resolution will be conducted, using both, static and transient parameterizations of the model land surface. So far, the baseline simulation with REMO has been completed. The model was forced with ERA40 reanalysis data for the period 1958 to 2001 at 1/2 degree and 1/6 degree horizontal resolution.

Focusing on land atmosphere interactions, we present the regional climate characteristics and how they are represented by the REMO simulation. This analysis will act as a base for the identification of regional climate change caused by future land use changes.