



Information

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Partners

- Research Institutes in Germany and in the African SASSCAL-countries

Funding

- BMBF

Project Duration

- Start: 2012
- End: October 2017

Objectives

- Capacity building in the area of science-driven solutions for present and future risks in the Southern African region with respect to climate change
- SASSCAL will support the national, regional, and local institutions and service provider with the development of the required skills

Milestones

- Q4/2014: Required regional-Climat change projections are identified
- Q3/2015: Model runs smoothly on desktop computers for long-term climate simulations
- Q4/2015: 5 simulations conducted
- Q3/2016: Input and output routines have been developed
- Q3/2017: Workshops held

CONTEXT

SASSCAL is a joint initiative of Angola, Botswana, Namibia, South Africa, Zambia, and Germany, responding to the challenges of global change. The establishment of a Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) creates added value for the whole southern African region. Its mission is to conduct problem-oriented research in the area of adaptation to climate change and sustainable land management and provide evidence-based advice for decision-makers and stakeholders to improve the livelihoods of people in the region and to contribute to the creation of an African knowledge-based society.

METHODS

- development of a user-friendly regional climate modelling system that runs smoothly on a common desktop computer
- broaden the ensemble of regional climate projections by performing simulations for the SASSCAL region
- develop and perform capacity building workshops

PROJECT OVERVIEW

Most of the global and regional climate models (GCM, RCM) only run on high performance computers that are connected to expensive computing centers. Therefore, access to climate models and the required computing facilities is limited to a small number of institutions mainly outside of SASSCAL. On the other hand, modern desktop computers are getting faster, theoretically allowing to run long-term simulations. In our contribution we will reprogram the existing regional climate model REMO in a way that parts of the calculations are sourced out to graphical processing units, so that the time for the simulation is shortened. Additionally, in order to provide non-climate scientists in the SASSCAL region better access to the model, a user-friendly model version will be developed.

The RCM projection ensemble of the CORDEX initiative provides a wide number of down-scaled RCP projections from GCMs. Initially, an evaluation of the size and of the GCM-RCM-Scenario combinations of the already available RCM ensemble will be carried out. Furthermore, uncertainty and robustness of the climate change projections will be analysed. Based on the results, five additional transient regional climate change projections will be conducted using REMO. The data of these five additional projections will be provided to the SASSCAL partners.

Key element of the GERICS activity in SASSCAL is capacity building. Training workshops on the application of the desktop version of REMO and on the analysis and interpretation of regional climate change projections with respect to uncertainty and robustness measures and will be conducted.

PRODUCTS

- regional climate projections for the SASSCAL region
- a user friendly regional climate modelling system
- capacity building workshops on data and model use