Project title: The Future Okavango (TFO)
Project administrator: Daniela Jacob
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TFO is a BMBF funded research project, coordinated by Prof. Norbert Jürgens, University of Hamburg. TFO is funded for the period from 2010 to 2015.
Preliminary Remark: For soft-money projects the BMBF asked the Climate Service Center to apply for CPU time out of the BMBF share.

The TFO research project focuses on the Okavango basin with its variety of savannah woodlands and wetland ecosystems linked by the central lifeline of the Okavango river. The region is a global hot-spot of accelerating change and land use conflicts and this study will link high-level inter- and trans-disciplinary research with trans-boundary stakeholder and landuser requirements. The basin comprises different aspects of the Okavango river as it flows through the highly disturbed war ridden areas of Angola, and on through the semi-arid areas of Namibia and Botswana. In Botswana it terminates in the Okavango Delta, the worlds largest inland delta and the largest freshwater swamp south of the equator. The Okavango basin is proposed here as a trans-boundary study region of high international visibility and high potential transferability of results to other tropical and sub-tropical regions.

The Climate-Service-Center is leading Workpackage 1 of the TFO Project, in which present and future climate conditions will be analyzed in the Okavango Basin under different IPCC scenarios and climate change data including uncertainty information will be provided to the other subprojects. The data will include information on all components of the hydrological cycle (precipitation, evaporation, soil moisture, surface runoff) as well as other meteorological variables (temperatures, radiation, wind, etc.). The regional climate models (RCMs) REMO and WRF will be extensively validated and if needed adjusted for the region and used with boundary conditions from ECMWF Re-analyses and the two different global climate models (GCMs) ECHAM6 and HadCM3. In addition, studies will be carried out to strengthen the understanding of the processes determining the climate of the Okavango region. These studies concentrate on remote influences as the moisture transport into the Okavango region. The thorough understanding of these processes allows for a substantiated evaluation and interpretation of the projected climate changes.

The first task consists of the comparison of the results of regional climate models to observations for the time period 1960 to 2010. The water budget (precipitation, evaporation and runoff) is estimated over the Okavango Basin. Further, uncertainties in the hydrological cycle simulated by the model ensemble are quantified. Within this task several simulations with the above mentioned RCMs driven by ERA40 and ERA-interim reanalyses will be carried out.