

Project: **706**

Project title: **The future Okavango: Scientific support for sustainable land and resource management in the Okavango basin**

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Report period: **1.1.2016 - 31.12.2016**

TFO was a BMBF funded research project, coordinated by Prof. Norbert Jürgens, University of Hamburg. TFO was funded for the period from 2010 to 2015. This research project was focussing on the Okavango basin with its variety of savannah woodland 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 has linked high-level inter- and trans-disciplinary research with trans-boundary stakeholder and land user requirements. The basin comprises different aspects of the Okavango River as it flows through the highly disturbed war ridden areas of Angola, and through the semi-arid areas of Namibia and Botswana. In Botswana it terminates in the Okavango delta, the world largest inland delta and the largest freshwater swamp south of the equator. The Okavango basin was 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 Germany was leading the Subproject 1 ("Climate Change in the Okavango Region") of the TFO project, in which present and future climate conditions were analysed in the Okavango basin under different climate change scenarios. The regional climate model (RCM) REMO was extensively validated and used with boundary conditions from ECMWF Re-analyses (ERA40 and ERA-INTERIM data) and the two different global climate models (GCMs) ECHAM6 and EC-EARTH. The computed climate change data including uncertainty information were provided to the other subprojects. The data contained information on all components of the hydrological cycle (precipitation, evaporation, soil moisture, surface runoff) as well as other meteorological variables (temperature, radiation, wind, etc.).

In addition, studies were carried out to strengthen the understanding of the processes determining the climate of the Okavango region. Sensitivity studies using varying SSTs concentrated on remote influences as the moisture transport into the Okavango region. Results show that the moisture transport into the Okavango region is mainly determined by the sea surface temperature of the Atlantic and Indian Ocean.

In the accounting period from 01.01.2016-31.12.2016, no climate change projections were calculated since no computing time was applied for this project. A scientific article with the title "Sensitivity of the hydrological cycle to corrections of the sea surface temperature bias over southern Africa in a regional climate model" is currently in preparation using the results from this project.