TP01 – Climate Change in the Okavango region

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Introduction

The Okavango catchment with the world's largest inland delta is particularly interesting to investigate its regional climate and the hydrological cycle. Here the Okavango river is the main water source for its downstream areas that are characterized by very little precipitation. It originates in the Highland of Bié (up to 2.619 m) and disappears in the sands of a desert. The basins climate is dominated by these changing environmental conditions along the river and by relative high temperatures that lead to more rapid evaporation fluxes. The annual hydrological cycle of the area shows two extremes: Seasonal flooding (from May/June) alternates with dry periods, which results in variable water levels of Okavango River in downstream situated regions.
As the region is strongly characterized by and depends on the water resources of the Okavango River, the possible changes of the climate, affecting all components of the hydrological cycle and thus the lives of the people living in a region of such unique natural characteristics are of uppermost importance and interest.

Objectives

This subproject will analyze present and future climate conditions in the Okavango Basin under different IPCC scenarios and provide climate change data including uncertainty information 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 (Jacob 2001, Jacob et al. 2007), and WRF (Skamarock et al. 2005) will be extensively validated and if needed adjusted for the region and used with boundary conditions from ECMWF Re-analyses and two different global climate models (GCMs). 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 moisture transport into the Okavango region.