The Okavango River Catchment is located northward of the Tropic of Capricorn. Accordingly, the climate of the catchment is not only affected by the seasonal shift of the intertropical convergence zone (ITCZ), but also by the development of the Angola low pressure system (e.g. Reason et al. 2006). Moving from north to south, the conditions change from semi-humid to semi-arid along the river and therefore, the spatial distribution of rainfall in the catchment shows a strong gradient from 7 mm per day in the northern part to 3 mm per day in the southern part of the catchment (Fig. 1). The rainfall occurs during the austral summer mainly in the months from December to February, and much less rainfall occurs during the austral winter. Over the period 1950 to 2009 the rainfall in the austral summer is characterized by a high interannual variability without an obvious trend (Fig. 2). The mean wind in 10 m height in the catchment is dominated by easterly flows and has a low speed of about 0.5-3.0 $m*s^{-1}$ from March to November. In the austral summer, the wind direction changes from east to north-east and the wind speed declines below 0.5 $m*s^{-1}$ in the mountainous north of the catchment being a result of the presence of the Angola low pressure system (Fig. 3).

The annual mean temperature has a high spatial range of about 6 °C in the catchment, with 18 °C in the extreme north-west of the catchment and 24 °C in the Okavango Delta and in an area

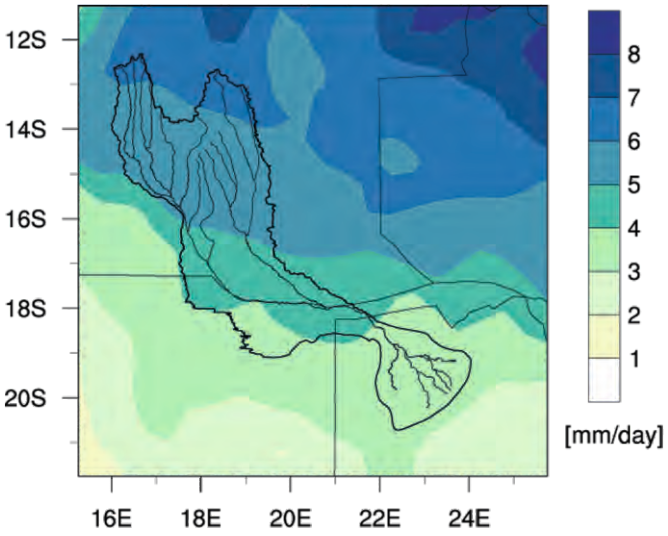

Fig. 1: Mean rainfall from December to February (period 1971-2000) (data source: Global Precipitation Climatology Centre (GPCC)).

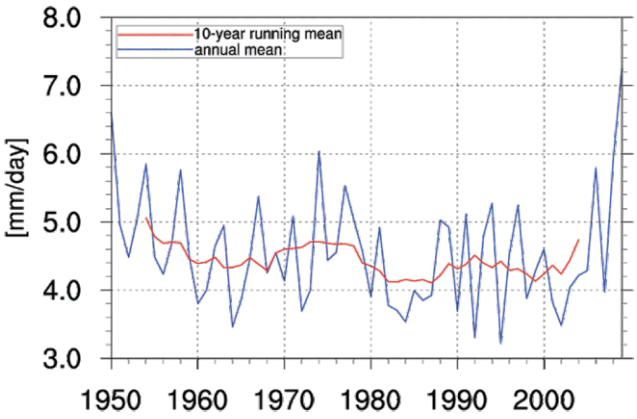

Fig. 2: Mean rainfall from December to February as spatial average over the Okavango River Catchment between 1950 and 2009 (data source: Global Precipitation Climatology Centre (GPCC)).

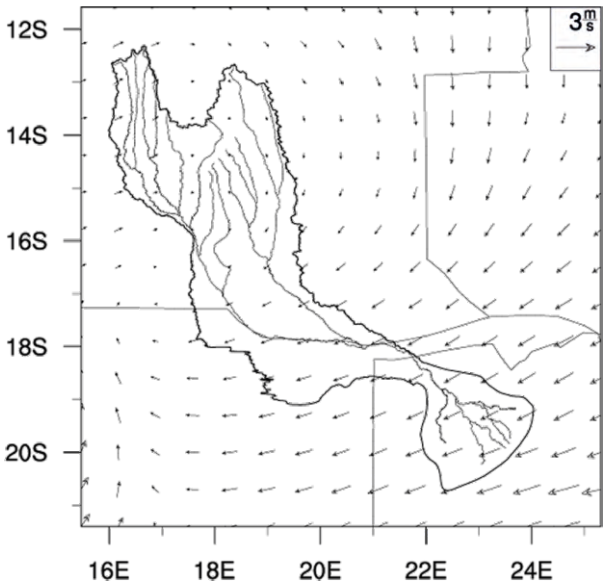

Fig. 3: Mean wind in 10 m height from December to February (period 1981-2010) (data source: ERA-Interim reanalysis data from the European Centre for Medium-Range Weather Forecasts (ECMWF)).

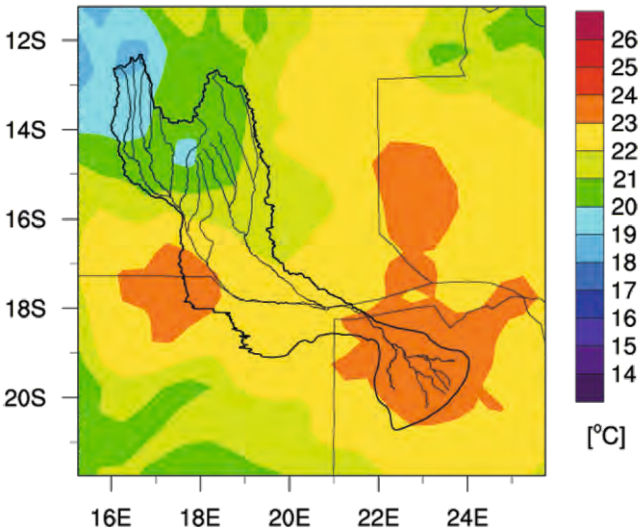

Fig. 4: Annual mean temperature (period 1971-2000) (data source: Climatic Research Unit (CRU)).

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covering from Katwitwi to the eastern boundary of the catchment (Fig. 4). High temperatures in the Okavango Delta can be explained with the topographic influence of the Kalahari Basin. The long-term timescale of the annual mean temperature shows a low interannual variability with an increase in temperature since the late 1970s (Fig. 5). The highest mean maximum temperatures with a range between 27 °C and 36 °C occur in the austral spring (September-November), whereas temperatures between 34 °C and 36 °C appear southward of a linking line between Caiundo and the confluence of the Longa and the Cuito Rivers (Fig. 6). The lowest mean minimum temperatures occur in the austral winter with 6 °C in the source area of the Cuito River and up to 10°C in north-eastern part of the Okavango Delta (Fig. 7).

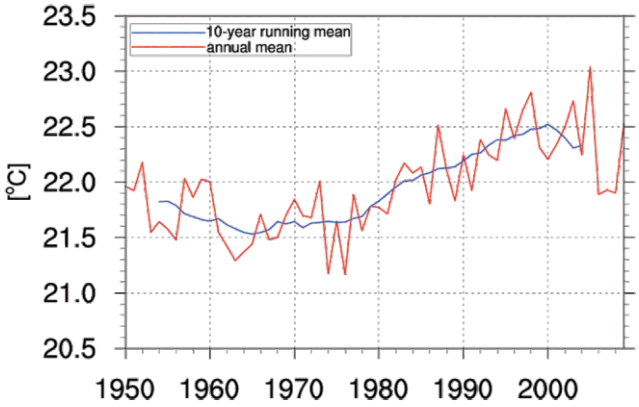

Fig. 5: Annual mean temperature as spatial average over the Okavango River Catchment between 1950 and 2009 (data source: Climatic Research Unit (CRU)).

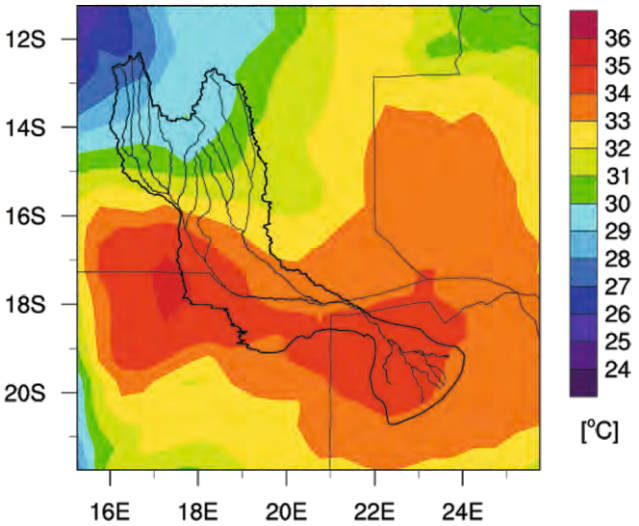

Fig. 6: Mean maximum temperature from September to November (period 1971-2000) (data source: Climatic Research Unit (CRU)).

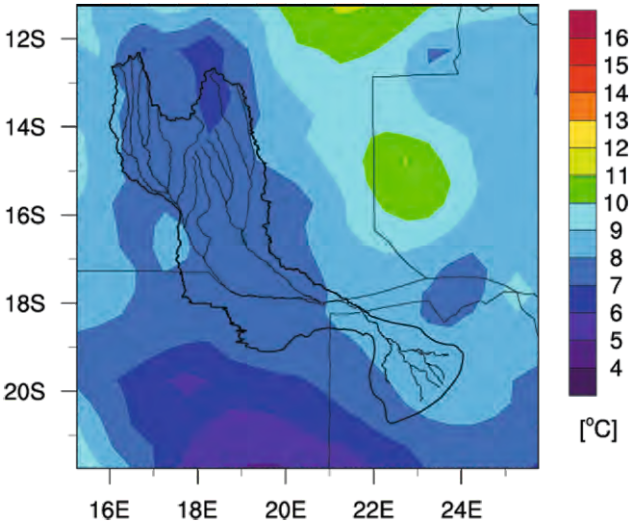

Fig. 7: Mean minimum temperature from June to August (period 1971-2000) (data source: Climatic Research Unit (CRU)).

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Data source

Temperature data was used from the Climatic Research Unit (CRU) (Mitchell & Jones 2005) and rainfall data from the Global Precipitation Climatology Centre (GPCC) (Becker et al. 2013). Both gridded observational data sets have a horizontal resolution of 0.5° x 0.5 ° (about 55 km x 55 km). Wind data was taken from the ERA-Interim reanalysis data provided by the European Centre for Medium-Range Weather Forecasts (ECMWF) (Dee et al. 2011) with a horizontal resolution of 0.7° x 0.7 ° (about 78 km x 78 km).

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