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**Climate trends of temperature, precipitation and river discharge in the Volta Basin of West Africa**

*By REBEKKA NEUMANN, GERLINDE JUNG, PATRICK LAUX and HARALD KUNSTMANN*

The impact of climate change on precipitation and water availability is of major concern for policy makers in the Volta Basin of West Africa, whose economy mainly depends on rainfed agriculture and hydropower generation. It is therefore essential to know if, and to which extent climate trends in the Volta Basin exist that impact water availability. In this study, the present trends in precipitation, temperature, and river discharge for the Volta Basin were analysed. Linear trend and corresponding levels of significance were calculated for time series of annual and monthly maxima and corresponding means respectively. Trends of total annual precipitation and standard deviations for all considered variables were analysed. In addition, the stability of linear trends was considered via reverse arrangement test. Clear positive trends with high levels of significance were found for temperature time series. Precipitation time series showed both positive and negative trends, whereas most significant trends were negative. However, due to the small number of significant cases, only weak trends towards a decrease in precipitation can be concluded. Most of the significant trends of the standard deviation in precipitation were negative. Due to this observation a trend towards a decrease in the variability of precipitation is concluded. In case of discharge time series, a small amount of (predominantly positive) significant trends for the wet season was observed. The majority of the significant trends for the dry season were negative. For discharge no clear trend could be evaluated though, as the anthropogenic influences (e.g. building of dams, intensified irrigation) could not be quantified. Both, standard deviation of temperature and of river discharge show positive and negative significant trends. Thus one can not draw the conclusion of a change in temperature and river discharge variability. It is additionally shown that monthly precipitation trends can be weakly linked to climate indices. This was achieved by linear correlation analysis between monthly precipitation amounts and the climate indices NAO, SOI, TNA, TSA.