

**Climate variability and change along the Great Ruaha River sub basin, Tanzania**

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Climate change is a very serious issue generally and in Africa in particular. Many poor countries especially in Africa are most vulnerable to climate change. For decision makers to take action there is need for a serious analysis and research on climate change and variability. According to various studies both maximum and minimum temperatures are expected to indicate positive future trends, with a stronger increase in the latter. For precipitation the projections are less clear, with decreases in northern and south Africa and increases in eastern Africa. Also an increase in the frequency of both droughts and floods is predicted for large parts of Africa, including Tanzania. In this study it is concluded that there is a need for collection of additional and more reliable station data. High resolution climate data obtained from downscaling global model by means of a regional climate model (RCM) makes it possible to evaluate projections of climate variability and change in Tanzania and will help in addressing topographical related features as well as processes on local to regional scale. As only limited observational data are available on a regional scale, it is essential to conduct high resolution RCMs simulations. This is necessary to meaningful model and changes on a daily basis in a region of very limited a priori knowledge. In this study the HIRHAM-5 and CORDEX model data will be used to assess past, present and future climate of Tanzania and the Great Ruaha River sub basin in Tanzania. Also extreme weather events such as droughts and floods will be assessed. The results of this study will be useful to contribute to the government and local community in decision making for the development of the country. key words: climate change, temperature, precipitation, droughts, high-resolution model, Tanzania