



Possible Climate Change/Variability and Human Impacts, Vulnerability of African Drought Prone Regions, its Water Resources and Capacity Building

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The climate, water resources and historical droughts of Africa, drought indices, vulnerability, impact of global warming and landuse to drought-prone regions in West, Southern, and Greater Horn of Africa, which have suffered recurrent severe droughts in the past are reviewed first. Recent studies detected warming and drying trends in Africa since the mid-20th century. Based on the 4th Assessment Report of the Intergovernmental Panel of Climate Change, and that of the 5th Coupled Model Intercomparison Project (CMIP5), both northern and southern Africa are projected to experience drying such as decreasing precipitation, runoff and soil moisture in the 21st Century and could become more vulnerable to impact of droughts. The daily maximum temperature is projected to increase up to 8oC (RCP8.5 of CMIP5), precipitation indices such as total wet day precipitation (PRCPTOT) and heavy precipitation days (R10mm) could decrease, while warm spell duration (WSDI) and consecutive dry days (CDD) could increase. Uncertainties of the above long-term projections, teleconnections to climate anomalies such as ENSO and Madden Julian Oscillation which could also affect water resources of Africa, and capacity building in terms of physical infrastructure and non-structural solutions, are also discussed. Given traditional climate and hydrologic data observed in Africa are generally limited, satellite data should also be exploited to fill in the data gap for Africa in future.