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Water availability trends across water management zones in Uganda

Charles Onyutha, Arnold Asiimwe, Lawrence Muhwezi, Ambrose Mubialiwo

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Abstract

This study assessed trends in gridded (0.25° × 0.25°) Climate Forecast System Reanalysis (CFSR) precipitation, potential evapotranspiration (PET), and precipitation minus PET (PMP) across the four water management zones (WMZs) in Uganda including Kyoga, Victoria, Albert, and Upper Nile. The period considered was 1979–2013. Validation of CFSR datasets was conducted using precipitation observed at eight meteorological stations across the country. Observed precipitation trend direction was satisfactorily reproduced by CFSR data extracted at five out of eight stations. Negative (positive) values of long-term PMP mean were considered to indicate areas characterized by water scarcity (surplus). Areas with large positive PMP were confined to Lake Victoria and mountains such as Rwenzori and Elgon. The largest negative PMP values were in the arid north and northeastern Uganda. The null hypothesis H_0 (no trend)