Transferability Experiments over Selected Climate Domains in Africa: Preliminary Results

Gbobaniyi, E. O., Hewitson B.C . and Tadross, M.A.

Climate Systems Analysis Group, University of Cape Town

Abstract

This study investigates the transferability of regional climate models in the two climate regimes of West and Southern Africa.

Following the exploratory framework as suggested by the Transferability Working Group (TWG) of GEWEX, sets of simulations were run using two models, RegCM3 and MM5 on each of the domains. Three versions of standard RegCM3 were considered based on the parameterization schemes employed i.e. Grell convection scheme with Fritsch-Chappell closure, the Arakawa-Schubert closure and the new Emanuel convection scheme. The MM5 simulations were run using the Kain-Frisch and the Betts-Miller convection scheme.

Each simulation was carried out for four summer months (JAS for West Africa and DJF for Southern Africa) with all parameters the same in each domain. The first month serves as spin-up time for the models. The variables of interest are precipitation and incident solar radiation.

Model results were compared with observation from CRU. The strengths and weaknesses of the parameterization schemes employed in the models were investigated for the two regions and the preliminary results discussed.