Geophysical Research Abstracts
Vol. 15, EGU2013-8872, 2013
EGU General Assembly 2013

Intercomparison of precipitation extremes over southern Africa in CORDEX simulations

Izidine Pinto, Chris Lennard, and Bruce Hewitson
Climate System Analysis Group, University of Cape Town, Cape Town, South Africa (izidinep@csag.uct.ac.za)

Climate and weather extreme events can have powerful impacts on human society and infrastructures as well as ecosystems and wildlife.
The ability of the COordinated Regional Downscaling Experiment (CORDEX)Regional Climate Models (RCMs) to capture patterns of extreme rainfall over Africa south of 10 degree S in their control simulations is assessed. Extreme rainfall are expressed in terms of 10-year return values that are estimated by fitting the Generalized Extreme Value (GEV) distribution to maximum summer (October-March) daily precipitation. For the control simulation the performance of the ensemble mean and individual RCM in simulating precipitation extreme are compared to a daily combined gauge and satellite products from Global Precipitation Climatology Project (GPCP) and daily precipitation from ERA-Interim Reanalysis.
The results shows that most of the RCMs reproduce the 10-year return values with varying magnitude. However, they show a coherence spatial distribution of precipitation extreme. Precipitation minimum occur to the very dry region to the west of southern Africa whereas the maximum occur to the east of the region, except in the CCLM model where the maximum occur mostly over the continent. The most heavy precipitation events, up to 100 mm/day, estimated from seven models
(CCLM4.8, ARPEGE, REMO, RCA35, PRECIS, WRF3.1.1 and CRCM5) are localized mainly over Mozambique and Mozambique Chanel (MC). This can primarily be attributed to a finer representation of mesoscale orographic features as well as tropical cyclones in the RCM compared to an coarse resolved GCM. The multi-model average substantially reduces large deviations of the individual members of the ensemble from the GPCP data.