



Analysing the performance of Regional Climate Models over Central and South America

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The majority of Regional Climate Models (RCMs) have been developed for application over either Europe or North America. Relatively few RCMs have been evaluated over tropical land regions, where convection and the interaction between convection and the land-surface are of fundamental importance. In this presentation we analyse the performance of 2 RCMs over Central and South America, with particular emphasis on the representation on the regional details of precipitation and its response to large-scale atmospheric circulation anomalies.

To assess this we have integrated the Swedish Rossby Centre Atmospheric model (RCA3) and the Limited-Area version of the Canadian GEM model (Global Environmental Multiscale model) for the rainy season of Central America (April-November), using observed SSTs and boundary conditions derived from the ECMWF reanalyses. Results will be presented for contrasting positive and negative phases of the El Nino-Southern Oscillation cycle to assess the response of the model parameterizations to anomalous large-scale atmospheric circulation patterns as defined by the opposite phases of ENSO.

Simulated Outgoing Longwave Radiation is compared to satellite observations in order to gauge if the models capture the response of convection over Central and South America to ENSO forcing. Higher resolution precipitation observations are compared to the RCM results in order to evaluate the higher-resolution, regional details of simulated precipitation. Problems in the interaction of the large-scale circulation with convection and surface forcing will be highlighted.