Geophysical Research Abstracts
Vol. 13, EGU2011-6472, 2011
EGU General Assembly 2011

The impacts of the Boundary Conditions over the North American Monsoon rainfall

Ruth Cerezo-Mota (1), Myles Allen (2), and Richard Jones (3)

(1) University of Cape Town, EGS, CSAG, South Africa (rcerezo@csag.uct.ac.za), (2) University of Oxford, AOPP, UK, (3) Met Office, Exeter, UK

Using two different datasets as boundary conditions (BC) to drive a regional model the impacts of such BC on the simulation of North American Monsoon (NAM) precipitation were evaluated.
The experiments were done with NCEP and ERA40 as BC to drive the PRECIS regional climate model, HadRM3P. After a detailed analysis of the moisture and low-level winds derived from the models we conclude that the Gulf of Mexico (GoM) moisture and the Great Plains Low-Level Jet (GPLLJ) play an important role in the northern portion of the NAM. Moreover the realistic simulation of these features is necessary for a better simulation of precipitation in the NAM. When HadRM3P is fed with BC that have less moisture over the GoM and the GPLLJ does not reach the AZNM region then a dry westerly flow dominates that area and the monsoonal precipitation is below normal. This implies that the precipitation in AZNM would not be correctly represented by a regional model driven with unrealistic low-level moisture flow derived from General Circulation Models.