Geophysical Research Abstracts, Vol. 9, 07268, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-07268

West Africa weather forecasting in AMMA-UK

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One of the main objectives of African Monsoon Multidisciplinary Analyses – UK (AMMA-UK) is to improve the understanding of West African Monsoon (WAM) and its prediction from days to weeks. A nested Met Office Unified Model (UM) system with horizontal resolution up to several kilometres will be set up for West African area. Using better validation data obtained through the international AMMA measurement campaign, we aim to improve the model's representation of the land surface processes, convection and the monsoon dynamics.

A first 10-day forecast of August 2005 with the global UM demonstrates that our model could relatively simulate relatively realistic daily rainfall during the first 3 days with slower westward movement, which is associated with the representation of African Easterly Jet. The model fails to reproduce the new strong convective systems starting since the third day due to no assimilation implemented. The UM mesoscale simulation provides more small scale events compared to the driving global model but mostly restricted by the driving field as well. Case studies during the campaign period in 2006 are currently under investigation in order to validate whether these small scale events are realistic or not. This study is still in its starting phase but the outcome would greatly increase confidence in our ability to model and predict the underlying dynamics of climate in this region.

Keywords – *West African Monsoon, AMMA, Dynamical Downscaling, Unified Model UM*