



Evaluation of the LMDz-INCA chemistry climate model during the West African monsoon 2006

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Quantification of regional budgets of ozone and its precursors (NO_x , CO, ...) over West Africa is a major goal of AMMA. This requires improved understanding of how import and export of pollution influences the chemical composition of this region. As a first step to these aims, we present results from the evaluation of the global chemistry climate model LMDz-INCA. The model has been compared to available trace gas observations collected during the special observation period SOP2 in July and August 2006 by five aircrafts (D_F20, F_F20, M55, ATR42, and BAE146). Tracer simulations have been performed to study the import of pollution from other regions (Central Africa, Mead-East, Asia...) into West Africa. Sensitivity of the model results to emission sources (e.g. biomass burning, anthropogenic sources, soil NO_x), lightning NO_x production will also be discussed. The other aim of this work is to highlight the key uncertainties in the model and to allow a much more comprehensive evaluation of model performance. For example, simulations have been performed with and without convection. Both the Kerry Emanuel and Tiedtke convection schemes are used in the simulations with convection.