



## **Regional modelling of aerosols and associated impacts in the framework of AMMA.**

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An aerosol scheme for use in climate studies is developed and implemented within the regional climate model RegCM. The model includes sulfates, black carbon (BC) and organic carbon (OC), as well as dust particles. This simple scheme accounts for the conversion of sulfur dioxide to sulfate and for two states (hydrophobic and hydrophilic) of the carbonaceous aerosols. Sources of sulfur dioxide, OC and BC from fossil fuel and biomass burning are prescribed according to existing inventories, as a specific emission scheme is used for mineral dust. For validation purposes, the model is run for the winter and summer seasons of the year 2000 over a large domain extending from Northern Europe to south tropical Africa. A specific focus is made over the AMMA domain. An evaluation of the model performance is carried out in terms of surface concentrations and optical properties. Budget and sensitivity studies (to sources, vertical transport) as well as simulated aerosol radiative forcing (and possibly the associated climatic impact) are discussed. At last, some perspective of development and application directly related to AMMA are also presented.