



Indirect effect of Aerosols on WAM convectives systems - Prospectives

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Modeling the indirect effect of aerosols on cloud systems is an ambitious objective because of its high level of coupling between cloud microphysics and atmospheric chemical composition. Firstly it is necessary to modelize the life cycle of chemical atmospheric constituents, in particular for the gas phase and the aerosols. Secondly, aerosol growth processes such as nucleation, coagulation, absorption/condensation and its hydrophobic / hydrophilic characteristics must be simulated. Thirdly, the aerosol activation knowledge needs to be improved in relation with his chemical composition. Finally, new CCN needs to be coupled with cloud microphysics parameterizations. To achieve this goal, a new lognormal aerosol scheme named ORILAM has been developed and coupled on-line in the MesoNH-C model. A presentation of this scheme and a preliminary 3D study of the evolution of aerosol distribution during the ESCOMPTE IOP2b campaign will be done. Until AMMA campaign, several developements of ORILAM will be introduced as:

- an organic hydrophilic/hydrophobic module coupled with the CACM scheme;
- an activation module coupled with the cloud scheme of MesoNH;
- an on-line module of dust and sea-salt emission coupled with the surface scheme of MesoNH;
- a parameterization of dust absoption/diffusion upon the radiation scheme of MesoNH.