

3.083 Organic aerosols and their impact on biogeochemical cycles and climate.

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Abstract:

In the atmosphere organics are a complex mixture of compounds of variable chemical, physical and optical properties. Depending on their sources and their atmospheric fate, they also have variable content in C, H, O, N. Therefore, organics are involved in the biogeochemical cycles of trace elements and are recycled between the atmosphere, the terrestrial biosphere and the ocean.

In the present study we investigate the contribution of organics to the global burden of cloud condensation nuclei and of ice nuclei, as well as to the nutrients atmospheric global cycles, using a global 3-dimensional chemistry transport model able to account for multiphase chemistry in the atmosphere, the major aerosol components as well as the nitrogen, iron and phosphorus nutrients.

Uncertainties related to the chemical, biological and physical process understanding or to the process parameterizations in the models are discussed.