



Dust aerosol transport with the chemistry-transport model MOCAGE

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Saharan dust aerosols can be transported over thousands of kilometres, affecting, for example, the Western Europe during some particular meteorological situations. The Chemistry-Transport Model of Météo-France MOCAGE simulates the emissions, the transport and the deposition (both by wet scavenging and dry deposition) of dust aerosols. The emissions have been computed using the soil-derived dust emission scheme developed by Marticorena and Bergametti [1995], and Marticorena et al., [1997]. Two dust episodes, which have reached France in 2004 have been studied. The results have been compared with in situ measurements (particles mass concentrations) performed by the French air quality network, Lidar measurements from the EARLINET network, satellite observations (aerosol optical thickness measured by POLDER, MODIS and TOMS). The simulations have also been intercompared with those obtained for the same period by other dust models (NAAPS and DREAM models) in terms of dust concentrations and accumulated wet and dry deposition.

These comparisons with available observations suggest that MOCAGE represents correctly the evolution of the dust clouds, both geographically and quantitatively. These developments lead to many applications (air quality management, role of dust on cloud formation, impact of dust emissions on climate...).