



Dust aerosols' mineralogy in the chemical transport model COSMO-MUSCAT during JATAC and comparison with lidar and in-situ data

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Mineral dust aerosols are composed from a complex assemblage of various minerals depending on the region they come from. Considering that minerals have their distinct physicochemical properties, differences on mineral dust aerosols climatic impact will arise as a consequence of distinct mineral content.

Chemical transport models typically assume that mineral dust aerosols have uniform composition, despite the known regional variations in the mineral components. This study adds mineralogical information to the mineral dust emission scheme used in the chemical transport model, COSMO-MUSCAT.

Here we show some steps of the inclusion of mineralogy to the emission scheme. Results of the simulated mineral dust aerosols are shown with their respective mineralogy from sources in Africa for an example case from the JATAC campaign in September 2021. The results of the simulated mineral dust aerosol are compared with lidar and in-situ data measured at Mindelo, Cape Verde. Furthermore, the comparison with the lidar retrieved vertical profiles at Mindelo, highlights a possible link between the mineral dust aerosol optical properties and the distinct minerals found within them.