



Variations in optical and microphysical properties of Saharan mineral dust from the DODO aircraft campaigns

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Mineral dust from the Sahara is uplifted and transported by the atmosphere throughout the year. During atmospheric transportation dust interacts with solar and terrestrial radiation, perturbing the radiation balance. This interaction is dependent on the aerosol optical properties of mineral dust, which may vary due to many factors including season, transport and source.

The DODO (Dust Outflow and Deposition to the Ocean) project involved aircraft measurements of airborne Saharan dust around Dakar, Senegal, during February and August 2006, following the AMMA SOP-0 and SOP-2 aircraft campaigns respectively. A total of fifteen flights sampled dust over land and ocean on a day to day basis. A combination of in-situ and radiation instruments on the FAAM BAe-146 aircraft allowed a full range of measurements to be made.

Results from the DODO project have allowed investigation of the optical and radiative properties of mineral dust during both the dry and wet season. The key aerosol optical properties and vertical structure of the dust measured during DODO will be presented. Factors influencing the differences in optical properties observed, including season, size distribution, transport distance, chemical composition and dust source will be assessed. Preliminary results of the radiative effect due to dust observed during DODO will be shown.