



Effects of aerosol absorption on climate dynamics in idealised Aquaplanet simulations

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Light absorption by atmospheric aerosols is affecting the earth radiation budget, cloudiness, and subsequently atmospheric dynamics. In this study, results of idealised Aquaplanet simulations made with the atmospheric general circulation model ECHAM6 applying an aerosol climatology, as well as with the global aerosol-climate model ECHAM6-HAM2, including a detailed aerosol representation, are presented. The Aquaplanet model will serve as a simplified version of the real earth system to isolate and understand the effects of mineral dust on climate dynamics. In the simulations using the aerosol climatology, zonally and hemispherically symmetric aerosol fields are constructed and several sensitivity studies are conducted assessing the impact of varying single scattering albedo and varying vertical profiles of aerosols. The simulations applying the full aerosol scheme apply prescribed idealised emission sources for all aerosol species, with sensitivity studies addressing the emission and absorption characteristics of mineral dust.