



Aerosol direct radiative effect efficiency, aerosol optical properties and surface albedo - comparison between simulations of models and results derived with measurements

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In this study Aerosol Direct Radiative Effect Efficiency (ADREE), aerosol optical properties and surface albedo are considered. The Aerosol Direct Radiative Effect normalized by the Aerosol Optical Depth (AOD), the ADREE, is simulated by several models and the estimates are compared with the results based on measurements. These models are from the AeroCom Phase II experiment. The ADREE is defined for clear sky and daily averaged ADREES at the surface are determined at over 20 stations. The stations are selected from various parts of the earth, covering different aerosol optical properties. For the same stations, aerosol optical properties for few wavelength bands are compared between models and products based on sun and sky measurements. The aerosol optical properties are Absorption AOD, AOD, Single Scattering Albedo (SSA) and they are provided from the Aerosol Robotic Network (AERONET), in addition surface albedo is also available. The main part of the study is to compare the ADREE, but a comparison of the above mentioned parameters is included to explain possible discrepancies. The preliminary results of three models of the daily averaged ADREE and measurement based estimations show that some systematic discrepancies exist. More frequent the two of the models provide weaker ADREE than one of the models and the measurement based ADREE. The number of models included in the study will be increased.