



Earth Radiation Balance in GCM Simulations with Different Aerosol Forcings

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To investigate the relative importance of different anthropogenic aerosol emissions for the radiation balance of the earth, we carried out a series of multi-decadal global climate experiments using the latest ECHAM5-HAM model version. The simulations cover the time period from 1950 to 2005. Aerosol emissions are taken from the National Institute for Environmental Studies (NIES). Besides a control run, simulations were carried out in which emissions of individual aerosols categories were frozen at their 1950 values (geographical distribution and total amount). Aerosol categories considered include SO₂ and black carbon from fossil fuel combustion as well as black carbon from biomass burning. The results from the different experiments are analyzed on the global and regional scale. Particular emphasis is given to the discussion of the results in the context of global brightening / dimming.