Geophysical Research Abstracts
Vol. 12, EGU2010-3181, 2010
EGU General Assembly 2010

Aerosol emissions and earth radiation balance in transient GCM simulations

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We investigate the relative importance of different anthropogenic aerosol emissions for the radiation balance of the earth by means of multi-decadal transient GCM simulations. The GCM is the ECHAM5-HAM, aerosol emissions are taken from the National Institute for Environmental Studies (NIES). An ensemble of control runs was carried out, as well as simulations 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 and discussed in the context of global brightening / dimming.