



Transient GCM Simulations, 1870 - 2000: effect of aerosol on radiative forcing

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Not much is known about the earth radiation balance in the late 19th and early 20th century. We performed transient climate simulations with ECHAM5-HAM, covering the period 1870 to 2000. Besides a control run, simulations were carried out in which emissions of individual aerosols categories were frozen at their 1870 values (geographical distribution and total amount). We use the simulation data to analyze the effect of different aerosol forcings, such as SO₂ and black carbon from fossil fuel combustion or volcanic aerosol, on the radiation balance of the earth on global and regional scales. Aerosol emissions are taken from the National Institute for Environmental Studies (NIES).