



Precipitation changes due to anthropogenic aerosols and greenhouse gases in MLO experiments

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We analyze mixed layer ocean (MLO) equilibria from time slice experiments with the global climate model ECHAM6.1, combined with the Hamburg aerosol module HAM2.2. For each first year of each decade from 1870 to 2000, three MLO experiments were carried out: aerosols and greenhouse gases (GHGs) of that year, only aerosols of that year and GHGs of 1850, only GHGs of that year and aerosols of 1850. We quantify how total precipitation as well as its composites (convective and large scale) change through these experiments on global and regional scales. Special emphasis is given to differences in precipitation response to either aerosol or GHG forcing, despite similar (absolute value) global mean temperature response. Finally, we address the role of the prescribed deep ocean heat flux.