



Effective radiative forcing by aerosols in the terrestrial spectrum

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The effective radiative forcing by anthropogenic aerosols involves thermodynamic and microphysical rapid adjustments of clouds. Only a few models parameterise microphysical effects of aerosols on ice clouds. In turn, all models include some representation of the thermodynamic adjustments. The total effective radiative forcing by anthropogenic aerosols as simulated by climate models may be decomposed into the contributions by the solar and terrestrial spectra. The magnitude of the forcing depends on the complexity of the parameterised effects, and is larger for the more sophisticated representations. In the terrestrial spectrum, adjustments are small unless microphysical effects are explicitly treated. Some observations-based constraints are shown to corroborate the forcing estimate in the solar spectrum. The talk will conclude by some suggestions concerning observations-based assessments of the effect in the terrestrial spectrum.