

The role of aerosol - cloud interactions as a driver of climate change in the past and in the future

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Particles in the atmosphere - aerosols - may serve as cloud condensation nuclei. Increases in aerosol concentrations thus change cloud droplet concentrations and thus enhance the brightness of clouds. Such aerosol-cloud interactions exert a cooling effect on climate. The presentation will explain how we learned to quantify this climate forcing from climate models and satellite observations. It will detail where open questions are, and what implications small or large aerosol-cloud effects have on climate sensitivity as well as past and future climate change. The improvement of air quality implies reduced aerosol forcing and thus enhanced warming currently and in the future, but also climate intervention by artificially enhancing the cloud brightness is in discussion.