



Impact of clouds and precipitation on atmospheric aerosol

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Aerosols have a significant impact on the dynamics and microphysics of continental mixed-phase convective clouds. High aerosol concentrations provide enhanced cloud condensation nuclei that can lead to the invigoration of convection and increase of surface rainfall. Such effects are dependent on environmental conditions and aerosol properties. Clouds are not only affected by aerosol, they also alter aerosol properties by various processes. Cloud processing of aerosol includes: convective redistribution, modification in the number and size of aerosol particles, chemical processing, new particle formation around clouds, and aerosol removal by rainfall to the surface. Among these processes, the wet removal during intense rain events, in polluted continental regions, can lead to spikes in acidic deposition into environment. In this study, we address the effects of clouds and precipitation on the aerosol distribution in cases of convective precipitation events in eastern US. We examine the effects of clouds and precipitation on various aerosol species, as well as their temporal and spatial variability.