



Numerical study of fog deposition onto a mountainous forest using atmosphere, aerosol chemical transport and land surface models: Chemical and physical properties of fog and aerosols

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In order to predict water and matter deposition to forests, accurate estimation of chemical and physical properties of fog and aerosols are indispensable. We have developed a new aerosol chemical transport model (EMTACS) coupled with a meteorological model (WRF) and applied it to investigate uplift fog events occurred over a mountainous forest (Mt. Rokko, Japan). The EMTACS model is unique to dynamically solve temporal evolutions of mixing states of fog and aerosols, in addition to their chemical compositions and size distributions, and thus aerosol-fog interaction processes are considered in one coherent framework. The model performance was evaluated using meteorological and chemical observation data. Formation, evolution and acidification processes of fog and aerosols over the forest region were discussed.