



## **Numerical simulation of activation of artificial hygroscopic aerosol particles**

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The efficiency of droplet activation on artificial hygroscopic aerosol particles are impacted by the characteristics of the natural aerosol particles. A 1D steady-state model coupling with a bin microphysics scheme with moving bin boundaries has been developed to study the evolution of water drops on aerosol particles of different chemical compositions. Numerical experiments with different updraft velocities were performed to study how the size distribution and chemical composition of natural condensation nuclei affect the activation of artificial hygroscopic condensation nuclei.

The other purpose of this research is to develop a scheme for the aerosol processing from activation of the natural condensation nuclei to regeneration of the aerosol particles. LES model is used to find the appropriate description of the activation of CN and to showcase the importance of the aerosol regeneration process.