



## **Comparison between model results and observations from cloud chamber experiments involving semi-volatile organic compounds**

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The co-condensation of organic vapours and water vapour is hypothesised to improve the ability of aerosol particles to act as CCN. This could lead to a significant biosphere-atmosphere interaction whereby biogenic emissions influence clouds and cloud formation. In an attempt to further understanding of the effects of co-condensation on cloud formation we present a comparison between observations, from cloud chamber experiments involving semi-volatile organic compounds, and model results.

Cloud chamber experiments were carried out in the coupled Manchester Aerosol Chamber and Manchester Ice Cloud Chamber system and involved a variety of different compounds. The pyACPIM cloud parcel model has been extended to include the condensation of semi-volatile compounds, in addition to water vapour, and is used to simulate conditions in the cloud chamber during expansion experiments. PyACPIM has been specifically designed to aid in the understanding of cloud chamber experiments and is open access and will be available through the EUROCHAMP-2020 project.

By evaluating our current understanding of the effects of co-condensation on cloud formation, ie the representation in the model, with observations, this work provides a first step to exploring the impact of biogenic emissions of clouds and the climate.