

Tropospheric multiphase chemistry in lab, modeling and field studies

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In the first part of this contribution an overview on tropospheric multiphase chemistry studies is given with emphasis on laboratory experiments. Aqueous phase kinetics and mechanisms are studied by laser-based methods and examples for the multiphase oxidation of compounds of interest (such as acetone, isoprene) will be given. Recently, investigations on non-radical oxidation reactions were initiated and, in addition, investigations of reactions in organic phase proxies were tested to come to kinetic data of interest for tropospheric organic particle chemistry. Both of these efforts will be described.

In the second part, the interplay with chemical mechanism development will be outlined and some recent results obtained by simulations with the CAPRAM chemical scheme will be presented including results from a joint study to set-up an aqueous phase chemistry mechanism generator.

Finally, in the third part, an effort to investigate aerosol-cloud chemistry in a complex ground based study (HCCT-2010) is described and first results are presented.

A summary and outlook will be given accounting for recent progress and trying to identify our current major gaps of knowledge.