

**Connected Laboratory Studies and Mechanism Development in CMD:
Tropospheric Aqueous Phase Chemistry as an Example**

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The concepts of multiphase and heterogeneous chemistry as well as the physical appearance and role of particles containing liquid water as a matrix for tropospheric chemical conversions will be discussed in short. An overview on recent laboratory studies of aqueous phase chemistry relevant for the understanding of multiphase and heterogeneous conversions in aqueous tropospheric particles is given. Examples regarding radical- as well as non-radical reactions will be shown. A possible treatment of chemical reactions under high electrolyte conditions as encountered in deliquescent aerosols will be outlined.

In the second part it will be demonstrated how results of laboratory studies are directly used in mechanism development. The current chemical aqueous phase radical mechanism (CAPRAM 2.4) will be outlined and some implications of cloud and aerosol chemical conversions on the tropospheric system as a whole as identified by box model studies. Current restrictions and lines of further research, especially the design of chemistry modules, will be discussed. This may serve as a basis of connecting GLOREAM and CMD activities.