

## **THE PROCESSING OF ORGANIC GASES BY ATMOSPHERIC AEROSOLS**

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Solubility is the main quantity controlling the uptake of gases by fine aerosols. Organic compounds such as acetone undergo irreversible chemical transformations in acidic and ionic solutions but their impact on the overall uptake is limited by solubility. Understanding the processes controlling solubility is therefore the key to predict the classes of organic gases that could be significantly depleted by atmospheric aerosols.

A recent study (Voisin et al, in preparation) demonstrated that, in contrast to what previously believed, solvation and protonation do not control the solubility of organic gases in ionic solvents and proposed a list of processes potentially responsible.

The present work is the continuation of this study. The solubility of organic gases in various acidic and ionic solutions has been measured by the Bubble Column technique using GC/FID for real-time detection of the organic gas-phase concentrations. The hypotheses on the nature of the critical processes have been tested. This allowed for identification of classes of organic compounds highly soluble in atmospheric aerosols, which will be presented.

Ref: Voisin D., B. Noziere, C.A. Longfellow, B. Henry, and D.R. Hanson, The processing of organic gases by atmospheric aerosols, In preparation.