



## **Microorganisms process organic aerosols**

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Organic aerosol comprises a large fraction of atmospheric particulate matter. During the last decades much research effort has been invested into the exploration of chemical and physical processes that form and modify organic aerosol mass. However, much less attention has been paid to the role of microorganisms in processing organic aerosol constituents.

Clouds have been identified as habitats for bacteria and other microorganisms. It has been suggested that bacteria in cloud water metabolize small organic molecules, such as carboxylic acids and aldehydes. The metabolic conversion rates for individual organics may be comparable to the rates of chemical reactions by radicals. However, the importance of the biological processes for the total organic carbon budget on a larger scale has never been quantified yet.

Only limited data exist for metabolic rates and products in the atmosphere. In the current presentation we will give a first estimate of the extent to which microorganisms contribute to organic processing in clouds. We will discuss these values in the context with other organic carbon budgets on various geographical and temporal scales. Conditions will be highlighted, under which clouds can act as sinks for water-soluble organic carbon due to biological activity and contrasted to those, under which biological processes may act as sources of organic aerosol constituents. Finally, we will discuss further measurements that are needed in order to refine our estimates.