

VRG22-003 - Atmosphere Cityscape Aerosol Interactions

Abstract

Imagine the city of the future ... how does it smell? The expected reductions from traffic emissions will change the urban atmospheric chemistry fundamentally. Apart from less CO₂ being emitted, other organic molecules will dominate the air of future cities, and this has a direct influence on urban air quality and climate action. Released into the air from paints, cleaning agents, hygiene products or even asphalt, a variety of so-called volatile organic compounds not emitted from combustion sources such as traffic or heating stoves start to become more and more abundant. However, once in the air, these substances can oxidize, and the resulting products easily form small molecular clusters. These clusters can grow into nano- to micrometer sizes particles, also known as aerosols. High aerosol concentrations can have significant health effects for humans, and they influence the climate footprint of the city as these particles are crucial for cloud formation.

The Vienna Research Group organic-ACIA (Atmosphere-Cityscape-Aerosol-Interactions) under the lead of Dominik Stolzenburg will investigate for the first time how substances emitted into the air from products of our everyday life can alter aerosol formation and hence air quality.

Scientific disciplines:

Atmospheric chemistry (40%) | Aerosol physics (40%) | Construction material practice (15%) | Urban design (5%)

Keywords:

Aerosols; Volatile Organic Compounds; New Particle Formation; Nanoparticle Growth; Volatile Chemical Products

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Further links to the persons involved and to the project can be found under

<https://wwtf.at/funding/programmes/vrg/VRG22-003/>