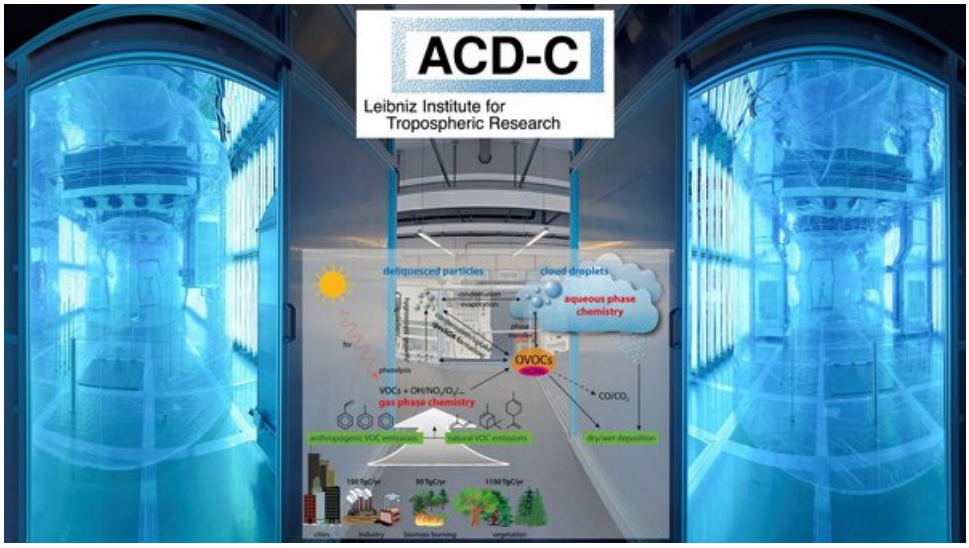
TROPOS
Leibniz Institute for Tropospheric Research

# Aerosol Research Facilities

## Atmospheric Chemistry Department - Chamber (ACD-C)




ACD-C with its twin chamber setup is a unique research infrastructure with broad online and offline instrumentation to study VOC degradation mechanism, SOA formation processes, multiphase chemistry as well as the chemical composition in the gas and particle phase, and toxicological effects of formed SOA.

ACD-C consists of two identical cylindrical reaction chambers made of Teflon FEP, with a volume of 19 $m^3$ and a surface/volume ratio of 2 $m^{-1}$. ACD-C is equipped with state-of-the-art online instruments, e.g. Mobility Particle Size Spectrometer (MPSS), Proton-Transfer-Reaction Time of Flight Mass Spectrometer (PTR-ToFMS), Cavity Attenuated Phase Shift (CAPS) analysers, trace gas analysers, an Aerosol Mass Spectrometer (AMS), a Chemical Ionization- Atmospheric Pressure interface Time of Flight Mass Spectrometer (CI-APi-TOFMS) allowing the investigation of atmospheric relevant processes under controlled and well-defined conditions. Studies at the ACD-C can be performed at relative humidity of up to 75%, enabling the investigation of deliquescent particles. Recently, ACD-C has been extended, so that it can also be operated as a flow-through reactor, which has proven to be useful for the studies under atmospheric relevant conditions. The combination of ACD-C with the Organic Tracers and Aerosol Constituents - Calibration Center (OGTAC-CC) offers the possibility to comprehensively characterize formed gas and particle phase products gaining the highest level of understanding of atmospheric processes at a molecular level. Additionally, the Leipzig Biomass Burning Facility (LBBF) is also part of ACD-C. This setup allows studies on primary emissions from biomass burning as well as the processing (aging) of the emitted smoke. The combination of biomass burning and aging in ACD-C offers a nearly unique tool for studying the atmospheric chemistry associated with biomass burning. Furthermore, it is possible to study multiphase processes with emphasis on aqueous particles, complementing the knowledge and the dedicated laboratory and modelling work of TROPOS ACD in this sector.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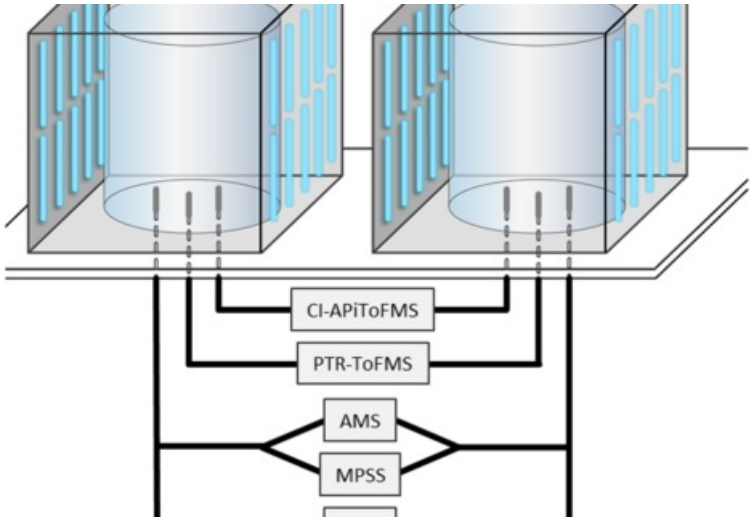
B


CI-APiToFMS
PTR-ToFMS
AMS
MPSS

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