



Stable Carbon Isotope Ratios in Atmospheric VOC across the Asian Summer Monsoon Anticyclone obtained during the OMO-ASIA campaign

Marc Krebsbach, Ralf Koppmann, and Thomas Meisehen

Institute for Atmospheric and Environmental Research, University of Wuppertal, Wuppertal, Germany
(m.krebsbach@uni-wuppertal.de)

The automated high volume air sampling system (MIRAH) has been deployed during the atmospheric measurement campaign OMO-ASIA (Oxidation Mechanism Observations) with the German High Altitude - Long-range research aircraft (HALO) in July and August 2015. The intensive measurement period with base stations in Paphos (Cyprus) and Gan (Maldives) focussed on oxidation processes and air pollution chemistry downwind of the South Asia summer monsoon anticyclone, a pivot area critical for air quality and climate change, both regionally and worldwide. The measurement region covered the Eastern Mediterranean region, the Arabian Peninsula, Egypt, and the Arabian Sea.

In total 194 air samples were collected on 17 flights in a height region from 3 km up to 15 km. The air samples were analysed for stable carbon isotope ratios in VOC with GC-C-IRMS in the laboratory afterwards. We determined stable carbon isotope ratios and mixing ratios of several aldehydes, ketones, alcohols, and aromatics. The large extent of the investigated area allowed for encountering air masses with different origin, characteristic, and atmospheric processing, e.g. Mediterranean air masses, crossing of polluted filaments and remnants of the Asian monsoon outflow, split of the Asian monsoon anticyclone.

In this presentation we will show first results and interpretations supported by HYSPLIT backward trajectories.