



PTR-MS measurements of HCHO and results from HCHO intercomparison measurements in the atmosphere simulation chamber SAPHIR

A. Wisthaler (1), A. Hansel (1), R. Koppmann (2), T. Brauers (2), J. Bossmeyer (2), R. Steinbrecher (3), W. Junkermann (3), K. Müller (4), S. J. Solomon (5), E. Apel (6)

(1) Universitaet Innsbruck, Innsbruck, Austria, (2) Forschungszentrum Juelich, Juelich; Germany, (3) Forschungszentrum Karlsruhe, IMK-IFU, Garmisch-Partenkirchen, Germany, (4) Institut für Troposphärenforschung, Leipzig, Germany; (5) Universitaet Bremen, Bremen, Germany, (6) NCAR, Boulder, CO, USA (armin.wisthaler@uibk.ac.at)

Formaldehyde (HCHO) is a key species for studies of photochemical oxidation pathways in the troposphere. Thus far, several techniques for atmospheric HCHO measurements have emerged but the availability of a compact and sensitive instrument for on-line HCHO measurement in the field is desirable. Proton-Transfer-Reaction Mass Spectrometry (PTR-MS) meets the desired criteria to a great extent but previous attempts to use PTR-MS for HCHO measurements have yielded discouraging results. Here, we will present modifications to the PTR-MS technique by which the instrument's performance for HCHO detection can be significantly improved. Furthermore, we will present results from HCHO intercomparison measurements which were conducted in the atmosphere simulation chamber SAPHIR at the Research Centre Juelich within the ACCENT QA Integration Task. In this experiment, typical ambient levels of HCHO were created in the simulation chamber under varying humidity and ozone levels. HCHO was analyzed by a variety of techniques including the Hantzsch method, DOAS, DNPH/HPLC/UV-VIS, and PTR-MS. The intercomparison was conducted as a formal "blind" intercomparison with an independent referee.