

Field Deployable Mass Spectrometers at ToFWerk

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ToFWerk has a long history in field deployable instruments. This started with the PhD work of the founders and continued with instruments for atmospheric sciences and now propagates into other fields.

Several deployable instruments will be presented.

1. An ion mobility spectrometer-mass spectrometer (IMS-MS) that was run continuously for multiple weeks at a remote Alabama field site during the 2013 Southern Oxidant and Aerosol Study (SOAS) campaign;
2. A chemical ionization mass spectrometer (CI-MS) installed aboard the aircraft NSF/NCAR C-130 in special frames that can withstand turbulent conditions for Wintertime INvestigation of Transport, Emissions, and Reactivity (WINTER 2015) campaign. Inlets mounted through the wall of the aircraft sample air directly from the sky into the mass spectrometers for the measurement of trace gases;
3. A fully customized compact TOF aboard the M55-Geophysica aircraft carrying instruments to stratospheric altitudes.

The requirements and technology will be discussed. Finally, some of the lessons that have been learned are discussed.