



## **QA /QC of European NO<sub>x</sub> measurements by round robin and side by side experiment at the Meteorological Observatory Hohenpeissenberg in the framework of ACTRIS**

Stefan Gilge (1), Christian Plass-Dülmer (1), Dietmar Weyrauch (1), Franz Rohrer (2), and the ACTRIS-NO<sub>x</sub> Team

(1) Deutscher Wetterdienst, Meteorologisches Observatorium, Hohenpeissenberg, Germany (stefan.gilge@dwd.de), (2) Forschungszentrum Jülich, IEK-8: Troposphäre, 52425 Jülich, Germany

The European ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network) project, Work Package 4, aims at harmonization and improvement of the measurement of volatile organic carbon and nitrogen oxides. Central tools to assess and compare the performance of European NO<sub>x</sub> monitoring stations and labs within ACTRIS are a round robin experiment (2012) and side-by-side intercomparisons (Nov 2012). While the first checked the used laboratories' scales versus a common scale, the latter investigated whether same samples are identically and artefact-free analyzed by collocated instruments. The ACTRIS-NO<sub>x</sub>-side-by-side intercomparison was realised by instruments sampling from a common manifold which was fed by zero gas, synthetic air mixtures, ambient air, and spiked ambient air. Thus, the side-by-side experiments enabled a full characterization of the detection limit, the linear range, the span, and of potential artefacts due to interfering species for each of the contributing instruments. Generally, CLD type NO<sub>x</sub> instruments were used in the comparisons supplemented by four new optical techniques, comprising LIF and cavity enhanced techniques. In the round robin exercise, some 20 monitoring sites participated, and 14 instruments were running side-by-side in the one week Nov comparison. The results of both experiments will be presented and discussed with respect to the data quality objectives of GAW and ACTRIS.