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Comparison of MAX-DOAS NO_2 slant column densities and DOAS fit properties during MADCAT

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The "Multi Axis Doas - Comparison campaign for Aerosols and Trace gases" (MADCAT) took place at MPI-C in Mainz/Germany in summer 2013. MAX-DOAS instruments from ten institutes were operated simultaneously in order to investigate the crucial settings of instrumental properties, calibration, and algorithms, for a) the retrieval of slant column densities (SCDs) of various trace gases (NO_2, HCHO, CHOCHO, H_2O) and O_4 as tracer for photon path lengths and b) the retrieval of tropospheric profiles.

Here we focus on the first step, i.e. the retrieval of SCDs, for NO_2. The DOAS analysis for NO_2 was done independently by the different groups, but based on concerted DOAS retrieval setups for the UV and vis spectral ranges. We present intercomparisons of NO_2 SCDs for different elevation angles from the different instruments. A statistical analysis of the deviations of each dataset with respect to the ensemble mean was performed. In addition, further DOAS fit results, like intensity offsets, the fit coefficients for water vapour and the ring effect, etc. are compared.