



MAX-DOAS Measurement of Glyoxal at the MIT in Cambridge during the NEAQS-ITCT 2004 Campaign

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During the New England Air Quality Study Intercontinental Transport and Chemical Transformation (NEAQS-ITCT) 2004 Campaign we performed measurements with Multiple Axis Differential Optical Absorption Spectroscopy (MAX-DOAS) at several sites in the northeast of the USA. Thereby scattered sun light was measured at different elevation angles (Multiple Axis) what allows to gain information on the vertical distribution of atmospheric trace gases. At the MIT station in Cambridge, our set-up was optimised to measure glyoxal, which has recently been detected by open-path DOAS in Mexico City and proposed as a new gas phase tracer substance for the chemistry of volatile organic compounds (VOCs). Here we present the first detection of glyoxal by a passive DOAS device. By means of radiative transfer modelling the concentration and vertical distribution of this interesting species are derived and are compared with those of NO_2 . Measurements of glyoxal are generally sparse, and as we demonstrate seem feasible with MAX-DOAS on a routine basis, also in semi-polluted urban atmospheres. Such measurements allow access to information on glyoxal precursor VOCs, which due to physical limitations are not directly accessible by passive DOAS devices.