Geophysical Research Abstracts, Vol. 7, 09122, 2005
SRef-ID: 1607-7962/gra/EGU05-A-09122

Measurements of NO_2 and HCHO in Northern Italy with the AMAXDOAS Instrument

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The AMAXDOAS-instrument is a specially designed Multi Axis DOAS (Differential Optical Absorption Spectroscopy) instrument for airborne measurements. In August 2002 and September 2003 the instrument was installed on a Partenavia 68 in the framework of the European FORMAT project (FORMaldehyde As a tracer for photooxidation in the Troposphere). During each campaign 10 flights were performed in greater Milano and the Po-Valley. The typical flight altitude was within or just above the boundary layer. Here we present data from both campaigns.

In 2002 we focused on the HCHO distribution around Milano. The different viewing directions allow us to retrieve profiles of both aerosol and HCHO from the observed SCDs of O_4 and HCHO. Based upon these data, we retrieved vertical columns and the total flux out of the town.

During the second campaign it was possible to derive NO_2emission rates of the large power plant of Sermide (south east of Mantova). Downwind of the power plant the emission plume had been crossed three times. As we measured forward and backward with several elevations, a 2 dimensional reconstruction of the plume is possible allowing a detailed analysis of the emissions.