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Sources of Formaldehyde: Trace Gas Emissions from agricultural Fires in Northern Italy

C. Hak, K. U. Mettendorf, A. Bäuerle, U. Platt, and I. Pundt

Institute of Environmental Physics, University of Heidelberg, Germany
(Claudia.Hak@iup.uni-heidelberg.de / Fax: +49 6221 54 6405 / Phone: +49 6221 54 6318)

Simultaneous measurements of CH_2O, NO_2, SO_2, O_3, and HONO were performed with the Multibeam-Longpath-DOAS (Differential Optical Absorption Spectroscopy) method during a field campaign in Lombardia (Italy). The measurements shown focus on the investigation of formaldehyde, an important source of odd hydrogen radicals and hence a precursor of tropospheric ozone. The campaign was part of the European project FORMAT (FORMaldehyde As a Tracer of photooxidation in the troposphere) and took place in autumn 2003 at three sites in the greater Milano area. Here, we concentrate on one rural site located at the river Po 40 km south of Milano.

The Po Basin is an area of intensive agricultural and industrial activity. While the industry agglomerates in Milano and its suburbs, the hinterland is characterised agriculturally. In autumn after harvesting the stubble fields are burnt down forming a considerable local source for hydrocarbons, like formaldehyde, and other gases of interest. The emissions of sulphur dioxide (SO_2) by several fire events and respective formaldehyde concentrations are examined in this study. Under the continuous meteorological conditions given, typical trace gas ratios for the burning plumes were identified.