



A method for measuring trace gas fluxes in plumes using MAX-DOAS

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Multi Axis Differential Optical Absorption Spectroscopy (MAX-DOAS) provides a relatively simple and inexpensive tool for measuring trace gas fluxes from spatially defined sources, e.g. volcanoes and industrial stacks. The technique is being used within the scope of the NOVAC-project (Network for Observation of Volcanic and Atmospheric Change) which aims to continuously monitor trace gas fluxes, especially of SO_2 and BrO, at various volcanoes around the world. The accuracy of the flux measurements depends on the precision of the spectroscopic measurement itself, but besides that it strongly depends on a good knowledge of relevant parameters such as height and distance of the plume as well as wind direction and wind speed. The goal is to measure as many of these parameters as possible with the DOAS instrument itself. The wind speed, for example, can be determined from time series of trace gas concentrations. This contribution gives an overview of the measuring method. It focuses especially on the possibilities to determine the necessary parameters and discusses the error propagation resulting from imperfect knowledge of certain parameters.