



Characterisation of the newly developed Tube MAX-DOAS instrument

Bianca Lauster, Katharina Uhlmannsiek, Sebastian Donner, Steffen Dörner, and Thomas Wagner
Max Planck Institute for Chemistry, Satellite Remote Sensing, Germany (b.lauster@mpic.de)

MAX-DOAS instruments are used to retrieve tropospheric profiles of trace gas concentrations from spectra of scattered sunlight. In this work we present the newly developed Tube MAX-DOAS instrument and its characteristic features: A very precise temperature stabilisation (heating and cooling) of the Avantes spectrometer is used to improve stability of the spectral properties and the correction of dark current signal. Furthermore, the high precision of the stepper motor to control the telescope elevation was tested and found to be accurate within about 0.01° . Finally, an automatic stabilisation of the elevation angle was implemented to enable MAX-DOAS measurements on mobile platforms (e.g. ships). The detailed analysis of these characteristics and their impact on the accuracy of the MAX-DOAS results are presented.