



Validation of OMI satellite data by mobile MAX-DOAS for different campaigns in Europe

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Multi-Axis Differential Optical Absorption Spectroscopy (MAX-DOAS) is a measurement technique that observes scattered sunlight under different elevation angles between zenith and horizon. If MAX-DOAS instruments are mounted on cars, the spatial distribution of trace gases along the driving route can be determined. However, it should be noted that from car MAX-DOAS observations usually no profile information can be derived. Instead the vertically integrated trace gas concentration, the so called vertical column density (VCD) is derived. In this study we compare the NO₂ VCDs derived from mobile MAX-DOAS are compared to the same quantity obtained from OMI satellite observations. For this purpose we used results derived at different campaigns in Europe during recent years (the MADCAT campaign in Mainz in 2013, the AROMAT I and II campaigns in Romania in 2014 and 2015, the AROMAPEX campaign in Berlin in 2016 as well as the APEX campaign in Munich in 2016). In addition to the car MAX-DOAS measurements we also consider MAX-DOAS observations made at fixed locations during these campaigns.