



## **Measurement of NO<sub>2</sub>, SO<sub>2</sub>, Formaldehyde and Glyoxal distributions in and around the Megacity of Lahore, Pakistan using car MAX-DOAS observations**

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Lahore, a Pakistani megacity is inhabited by more than 11 million people and thus a strong emission source of atmospheric pollutants. To investigate the distribution of tropospheric pollution over Lahore we performed car multi-axis differential optical absorption spectroscopy (car-MAX-DOAS) observations in and around the city. We will present results from two extensive campaigns which took place in May and June 2017 and January and February 2018. From the measured spectra we derive the vertically integrated concentration (the so called tropospheric vertical column density, VCD) of four trace gases namely; NO<sub>2</sub>, SO<sub>2</sub>, Formaldehyde and Glyoxal along the driving route. We also analyse the day to day variability of the pollutants as well as their dependence on meteorological properties. For some days with stable wind conditions also estimates of the total Megacity emissions will be determined. From both measurement campaigns we analyse seasonal trends of the four above mentioned species as the measurements have been performed in summer and winter seasons.