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Validation of satellite observations over New Delhi and Paris using mobile MAX-DOAS observations

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Megacities are localized, heterogeneous and variable sources of various air pollutants, having great impact on air quality and ultimately on climate. Within the European project MEGAPOLI we characterise and quantify the pollution levels and emissions for New Delhi and Paris using spectroscopic observations from satellite and ground based instruments mounted on a car.
The mobile observations are conducted on circles with different radii around New Delhi. From these observations together with meteorological information, the total emissions of trace gases like NO2, HCHO or Glyoxal can be quantified. The mobile measurements are also used for validation of the satellite observations.
From the satellite observations the link from local to regional and global scales can be made. Especially the impact of important sources like megacities on the surrounding areas and also over longer distances can be studied. The combination with the mobile measurements adds information about heterogeneity within a satellite pixel and the diurnal cycle, which are not well captured from satellite observations.
Here we present first results from mobile-based Multi-Axis-DOAS (MAX-DOAS) observations of NO2 and relate them to the results from satellite observations in New Delhi.