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Mobile lidar within the framework of MEGAPOLI summer experiment

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The MEGAPOLI (Megacities: Emissions, urban, regional and Global Atmospheric POLlution and climat effects, and Integrated tools for assessment and mitigation) summer campaign took place in July 2009 around Paris megacity. The main objectives of the MEGAPOLI campaign are: i) to assess impacts of megacities and large air-pollution hot-spots on local, regional and global air quality and climate, ii) to quantify feedbacks between megacity emissions, air quality, local and regional climate, and global climate change, iii) to develop and implement improved, integrated tools to assess the impacts of air pollution from megacities on regional and global air quality and climate and to evaluate the effectiveness of mitigation option.
During this experiment a mobile lidar system has been deployed onboard a van in order to follow the evolution of anthropogenic aerosols optical properties during their transport. This system operated during the intensive observation periods of the experiment. It was composed of two detection channels to measure the backscatter signal in the two cross-polarizations. These measurements have highlighted contrasted behaviors of aerosols in the planetary boundary layer during their transport from Paris to its suburbs ($\sim$60-100 km). The main pollution events have been observed in the beginning of July (on the 1st and 2nd of July) with a mean aerosol optical thickness close to 0.4 at 550 nm.
We will present the main observations carried out by the mobile lidar system as well as their interpretations by taking into account the dynamics of the air masses.