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Lidar Observation and mass conversion of Urban Aerosol Plumes

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In order to characterize the shape and dynamics of urban particle, experimental campaigns took place in the Paris region, using the transportable Leosphere Aerosol Lidar System (ALS) at 355nm, 1.5m spatial resolution.
This instrument is provided with a scanning device that enables 2D and 3D scanning to detect particle plumes. This communication focuses on different environment types, including road tunnels and urban road. For these measurements the lidar was placed in horizontal and vertical position. From range corrected backscattered signal, it is possible, for horizontal measurement, to retrieve through the slope method the extinction coefficient and then detect the different plumes and their origins.
With PM10 measurements, an approximation of the mass concentration has been done for horizontal scanning.