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First 2D and 3D Lidar Observation of Urban Aerosol Plumes

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In order to characterize the shape and dynamics of urban and industrial particle plumes, experimental campaigns took place from December 2008 to July 2009 in Nice and Lyon urban areas, using the transportable Leosphere Aerosol Lidar System (ALS) at 355nm, 1.5m spatial resolution with depolarization channel. 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 urban highways, road tunnels and industrial stacks. For these measurements the lidar was placed in horizontal position. From range corrected backscattered signal, it is possible to retrieve through the slope method the extinction coefficient and then detect the different plumes and their origins.