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Large-eddy simulation of the urban boundary layer in the MEGAPOLI Paris Plume experiment

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This study presents results from the specific large-eddy simulation study of the urban boundary layer in the MEGAPOLI Paris Plume field campaign. We used LESNIC and PALM codes, MEGAPOLI city morphology database, nudging to the observed meteorological conditions during the Paris Plume campaign and some concentration measurements from that campaign to simulate and better understand the nature of the urban boundary layer on scales larger then the street canyon scales. The primary attention was paid to turbulence self-organization and structure-to-surface interaction. The study has been aimed to demonstrate feasibility and estimate required resources for such research. Therefore, at this stage we do not compare the simulation with other relevant studies as well as we do not formulate the theoretical conclusions.