

Abstract Submitted  
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**Large-eddy simulation of short-range dispersion from localized sources in an urban-like canopy** DAVID PHILIPS, Stanford University, RICCARDO ROSSI, University of Bologna, GIANLUCA IACCARINO, Stanford University — Results from large-eddy simulation of passive scalar dispersion from point source releases in an urban-like canopy are presented. The canopy is comprised of a periodic array of variable height buildings with square cross-sectional areas. The buildings are immersed in a turbulent, pressure-driven flow with a roughness Reynolds number,  $Re_\tau = 433$ . Pressure gradient direction is varied between  $0^\circ$ ,  $45^\circ$ , and  $90^\circ$  to examine the effects on dispersion when the prevailing wind encounters staggered, skewed, or aligned building arrangements, respectively. Additionally, source location is varied to assess the impact of local building geometry on plume development. Plume trajectories and growth rates for the various scenarios are examined. The vertical development of the plume is better characterized by the roughness parameterization of the canopy than the horizontal development which is more sensitive to local geometry.

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