

Abstract Submitted
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Optimizing the determination of roughness parameters of urban canopies AUVI RAHMAN, PABLO HUQ, University of Delaware — We present an optimization procedure to determine the roughness parameters for an urban canopy. The mean velocity profile above an urban canopy is described by the log law via the roughness parameters: zero-plane displacement height d , roughness length z_0 , and friction velocity u_* . Traditionally these parameters are obtained from a single mean velocity profile. We have devised a new procedure which is akin to the bootstrap or jackknife resampling method where multiple mean velocity profiles are generated from a single mean velocity profile. Each of the generated profiles are then best fit to the log law and sets of d , z_0 , and u_* are estimated. These sets of values show distinct clusters when plotted against the relative sensitivity of the log law to the zero-plane displacement height d . A single representative or optimal value of the roughness parameters are then obtained automatically by utilizing a standard clustering procedure. Application of this method is also presented for field and laboratory data.

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