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The local advection of momentum, heat and moisture over inhomogeneous surfaces is numerically investigated by a 2-dimensional higher-order turbulence closure model. The model includes equations for the mean quantities, turbulent fluxes, and the viscous dissipation rate. The relative contributions from the eddy-covariance, mean advection, and storage are compared under various atmospheric conditions and plant canopies. The evolution of advection relative to eddy-covariance as a function of normalized downwind distance is examined.

We will present the advective effects on turbulent flux distributions, and surface energy balance.

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