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Implications of spatial heterogeneity on fluxes and dispersive stresses in a forest canopy HAWWA KADUM, RYAN SCOTT, SARAH SMITH, NASEEM ALI, JULIAAN BOSSUYT, RAL BAYON CAL, Portland State University, MARC CALAF, University of Utah — The influence of canopy sublayer flow characteristics extends from locally deriving forest ecological processes to globally altering the atmospheric boundary layer. Here, implications of spatial heterogeneities and the impacts of unintended consequences caused by natural events and/or human intervention on the flow behavior in the canopy sublayer are considered. A series of experiments are conducted in Portland State University closed loop wind tunnel facility. Forest models consistent of alternating areas of forest patches and gaps in the streamwise direction are tested. The study covers various combinations of patch and gap lengths as well as a contiguous forest model with no gaps. Heterogeneity effects are examined through the quantification of dispersive stresses and terms associated with the momentum and mean kinetic energy equations.

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