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Unfolding the Link between Forest Canopy Structure and Flow Morphology[1] GIULIA SALMASO[2], University of Utah, RAL BAYON CAL, Portland State University, CHAD HIGGINS, Oregon State University, MARC CALAF, University of Utah — The focus of this project is on canopy heterogeneity associated with canopy lacunarity with scales ˜O(100m) associated with a uniform under-canopy roughness and dominated by weak thermal stratification. Such near-canonical cases describe inhomogeneous momentum transport in an otherwise planar homogeneous flow when the canopy is absent. These canonical configurations serve as a logical starting point for the more complex cases. More specifically, in this work, we explore the use of dispersive fluxes as a means not only to quantify the perturbations induced by the canopy heterogeneity on the mean flow but also as an opportunity for developing new parameterizations. For this purpose, Large Eddy Simulations of the atmospheric boundary layer with varying geostrophic forcing will be used. A high-resolution representation of different vegetated canopies, with a changing degree of "*gapiness*" and heterogeneity, is included. Results will quantify the perturbations induced by the canopy heterogeneities on the mean flow and higher-order statistics. Furthermore, preliminary results of a new scaling relating the contribution of canopy-induced dispersive fluxes as a function of canopy heterogeneity will be presented.

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[2]This abstract should be placed together and ordered as follows: Scott et al., Kadum et al. and Salmaso et al.

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