

Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

Flow event classification via conditional statistics of PIV data in a model wind turbine array¹ DEVIN KNOWLES, RAÚL BAYOÁN CAL, Portland State University — Conditional statistics are employed in the analysis of velocity data taken on a 3x4 model wind turbine array in a scaled wind tunnel experiment. Dual Stereo Particle Image Velocimetry measurements of the incoming and wake flow fields are considered for the wind turbines in the first and fourth row positions along the centerline. Quadrant analysis is applied to the SPIV data for all components of the Reynolds stress tensor $\langle u_i u_j \rangle$. The flow events involving all three components of velocity are identified and characterized using this conditional averaging technique as proposed by Raupach.² Particular attention is given to the out of plane component of velocity due to the 3-dimensional nature of the flow in the wind turbine wake.

¹National Science Foundation: ECCS-1032647

²Raupach, M. R., (1981), *J. Fluid Mechanics*, **108**, 363 – 382.

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Date submitted: 02 Aug 2013

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