

Abstract Submitted  
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**Description of coherent features in the atmospheric boundary layer by low-dimensional analysis of surface pressures<sup>1</sup>** GREGORY LYONS, NATHAN MURRAY, University of Mississippi - NCPA — Short-term localized forecasting of the near-earth atmospheric boundary layer could enhance empirical models and provide input for wind energy control systems. It is expected that a successful forecasting method could be developed through characterization of the coherent turbulent structures in the near-earth flow field. The coherence of these features suggests description by a low-dimensional method, such as the dynamic mode decomposition. To this end, a circular array of pressure transducers approximately 60 meters in diameter was deployed on the earth's surface, and time series were recorded at each sensor location. As scalar observables, these pressure measurements are functions of the flow field system. As such, by decomposing these data into dynamic modes, the spatial and temporal coherence of local features in the near-earth atmospheric boundary layer is described.

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