

Abstract Submitted  
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**Retrieval of Micro scale Atmospheric Flow Structures from Dual-Doppler Lidar Data**<sup>1</sup> QUANXIN XIA , CHING-LONG LIN, Department of Mechanical and Industrial Engineering, IIHR-Hydroscience and Engineering, The University of Iowa, Iowa City, IA, RONALD CALHOUN, Department of Mechanical and Aerospace Engineering, Arizona State University, Tempe, AZ, ROB K. NEWSON, Harris Corporation, Melbourne, FL — In the Joint Urban 2003 atmospheric field experiment held in Oklahoma City, two coherent Doppler lidars were deployed to gain new insights into the boundary layer transport processes of contaminants in and around cities. That provided the opportunity to evaluate the accuracy of the four-dimensional variational data assimilation (4DVAR) method designed for single-lidar data retrieval. This work is to determine the fidelity of the data retrieved from the 4DVAR and assess model errors. With the availability of two Doppler lidar data sets, we perform 4DVAR analysis on radial velocity data measured from one lidar system. The retrieved velocity field is then used to construct radial velocity which can subsequently be compared with those measured from the second system for the error analysis. The building data is also utilized to interpret the retrieved structures.

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