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Sunday–Tuesday, November 19–21, 2023; Washington, DC

Session T43: Turbulence: Environmental and Planetary Boundary Layer

4:25 PM–6:09 PM, Monday, November 20, 2023

Room: 207B

Chair: Cody Brownell, US Naval academy

Abstract: T43.00006 : Field Measurements of Lagrangian Statistics in the Atmospheric Surface Layer*

5:30 PM–5:43 PM

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We present unique field measurements of Lagrangian trajectories in the lower atmospheric boundary layer. A field-scale, three-dimensional, particle tracking system was used to obtain the statistics. A massive measurement volume—greater than one hundred meters cubed—enables the study of a range of turbulent transport phenomena, including single-particle and two-particle dispersion. The scaling of Lagrangian statistics and comparisons to classical homogeneous isotropic turbulence will be presented. These findings contribute to our understanding of mixing and scalar dispersion in the atmosphere.

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