Abstract Submitted
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Mean velocity statistics and turbulent structure in a very high Reynolds number boundary layer SCOTT MORRIS, Notre Dame — PIV measurements were acquired over a region of y+ up to 3000 in the atmospheric surface layer at the SLTEST site with a range of 6000 wall units in the streamwise direction. The surface roughness was k+=14, with a boundary layer thickness of order 100m. The thermal conditions were neutral for more than one hour prior to and after the measurement period. A total of 708 snapshots were acquired in a 25 minute period where the wind conditions were nearly stationary. In this talk, mean velocity statistics will be used in comparison to the log-law fit as well as a power law fit. RMS statistics and Reynolds stresses will be compared with lower Reynolds number data. Finally, the structure of the flow will be described both in terms of stochastic quantities, such as the two point correlation functions, as well as instantaneous visualizations of the vector field.

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