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Instantaneous streamwise velocity profiles at very high Reynolds number in the neutrally stable atmospheric surface[1] BEVERLEY MCKEON, California Institute of Technology, MEREDITH METZGER, University of Utah — We present instantaneous streamwise velocity profiles from the neutrally stable atmospheric surface layer, which we consider as a model for a very high Reynolds number canonical zero pressure gradient boundary layer with $Re_\tau = O(10^6)$. The data were acquired at the SLTEST site in Utah's western desert using 31 logarithmically-spaced single normal hot wires and 9 sonic anemometers spanning $0.001 \leq z \leq 26$m ($2 < z^+ < 10^5$). Low- and high-pass filters applied to the instantaneous velocity field reveal the relationship between the "footprint" of large-scale motions (which are thought to originate in the logarithmic overlap layer) reaching down through the buffer layer and the spatial and temporal extent of periods of intense small-scale activity.

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