

Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Resolving near-wall particle dynamics for turbulence-induced saltation and dispersion TAEHOON KIM, SAMUEL HAMERMESH, RUI NI, Johns Hopkins University — The Stanley-Corrsin wind tunnel at Johns Hopkins University has recently been repurposed for studying sediment transport over an erodible surface. To resolve the near-wall particle dynamics, a hybrid technique that uses both the back illumination and scattering light illumination was adopted to measure the particle dynamics over a wide range of scales. In particular, it allows us to resolve particle motion across the near-wall saltation layer using our in-house particle tracking code. From this experiment, the entire time history of particle behaviors can be acquired. In this presentation, we will discuss the statistics of near-wall particle motion and its relationship with the near-wall turbulence.

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Date submitted: 02 Aug 2019

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