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Structural perturbations in granular beds due to shear-flow-driven, fluvial erosion JULIA SALEVAN, Yale University, MARK SHATTUCK, City College of New York, COREY O'HERN, NICHOLAS OUELLETTE, Yale University — The complex interactions between granular media and flowing fluid play a principal role in shaping landscapes via erosion. Despite a large body of work in granular materials and in large scale topographical changes of granular beds due to fluid flow, the detailed physical mechanisms that underlie the coupling between hydrodynamic shear and internal rearrangement remain poorly understood. To address these questions, we perform experimental studies of shear flow across granular beds and monitor changes in the structural properties of the granular packing. We pay particular attention to the extent of perturbations of the packing as a function of depth within the bed and examine the effects of varied fluid flow regimes and time scales on bed rearrangements.

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