

Abstract Submitted
for the DFD05 Meeting of
The American Physical Society

Sediment dynamics over rippled beds in oscillatory flow: Experiments PHILIP KNOWLES, KEN KIGER, Dept. of Mechanical Engr., Univ. of Maryland, ALBERTO SCOTTI, Dept. of Marine Sciences, Univ. of North Carolina — The University of Maryland Oscillatory Sediment Flume (UMOSF) is an experimental facility built to investigate sediment transport mechanics within an oscillatory turbulent boundary layer is over a mobile sediment bed. The range of sediment size and density as well as the flow oscillation amplitude and period is selected in the current work to study flows which generate rippled bed forms. The measurement technique utilizes a simultaneous two-phase PIV method to examine fluid-particle interactions, focusing on the suspension mechanisms and to obtain statistics to describe the two-way coupling. Specifically, measurements will focus on the upslope face, crest and recirculation zone of the ripple, where previous simulations for steady flow¹ have shown the strongest regions of suspension, injection into the boundary region, and mixing with the outer flow to occur. Results of these experiments are closely coordinated with ongoing numerical simulations, and discussed in a companion presentation.

¹Chang & Scotti, *J. Turbulence*, 4(019), pp.1-21, (2003).

Kenneth Kiger
University of Maryland

Date submitted: 11 Aug 2005

Electronic form version 1.4