

Abstract Submitted  
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**Towards establishing the rheology of a sediment bed** EDWARD BIEGERT, BERNHARD VOWINCKEL, ECKART MEIBURG, University of California Santa Barbara — In order to gain a better understanding of erosion, we have conducted numerical simulations of particle-resolved flows similar to the experiments of Aussillous et al. (2013), which involve laminar pressure-driven flows over erodible sediment beds. These simulations allow us to resolve velocity profiles and stresses of the fluid-particle mixtures within and above the sediment bed, which can be difficult or impossible to measure experimentally. Thus, we can begin investigating the rheology of the fluid-particle mixtures. In particular, we compare the effective viscosity as a function of volume fraction to existing models, such as those of Eilers (1943), Morris and Boulay (1999), and Boyer et al. (2011).

Edward Biegert  
University of California Santa Barbara

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