



Wave-induced ripples development in mixed clay-sand substrates

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A large-scale flume experiment (as part of EU HYDRALAB IV) was conducted in the Total Environment Simulator, University of Hull from 27th August to 25th September, 2013. The purpose of the experiments was to provide full quantification of near-bed turbulence and sediment transport interactions over rippled beds of clay-sand mixtures under oscillatory flow conditions. A series of state-of-the-art measurements were employed to quantify interactions of near-bed hydrodynamics, sediment transport, and turbulence over rippled beds formed by wave action. The experimental results demonstrate the significant influence of the amount of cohesive materials in the substrate on bedform evolution under regular surface waves. Most importantly, the time of initial ripples appearance is delayed around 30 minutes in substrates with higher percentages of cohesive clays (Run 5, 5.3%; Run 6, 5.5%) compared with experiments conducted with well-sorted sand (a median diameter of ~ 496