

Abstract Submitted
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Simulation of Sediment Wave Generation and Maintenance GARY HOFFMANN, ECKART MEIBURG, MOHAMAD NASR-AZADANI, UC Santa Barbara — Deep-sea sediment waves are a common feature throughout the world, forming under the influence of turbidity currents, thermohaline currents, and/or deformational processes. Past efforts for modeling turbidity-current generated sediment waves have focused on 1D (depth-averaged) Navier-Stokes equations, whereas here we use the 2D equations, as implemented in TURBINS 2D. We employed two experimental setups: 1) Repeated flows in a lock-exchange configuration, in which deposition and erosion are observed to lead to waveforms developing on an initially linear ramp, and 2) single continuous inflow currents that are allowed to flow over a pre-existing sinusoidal geometry. Using these two setups, we examine both the initial generation of sediment waves over the course of many episodic events, as well as maintenance of sediment waves under the influence of a quasi-steady flow. In both setups, we examined a range of flow parameters, such as ramp length, sediment settling velocity, etc.

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