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Turbidity Currents in Complex Topographies MOHAMAD NASR-AZADANI, SEBASTIAN SAEGELER, MICHAEL ZOELLNER, ECKART MEIBURG, UC Santa Barbara — We consider particle-laden gravity currents interacting with complex seafloor topographies, such as mini-basins, ridges or meandering channels. Both two- and three-dimensional Navier-Stokes simulations are employed in order to investigate their dynamics, entrainment and depositional behavior for a range of flow and geometrical parameters. We observe that coherent vortical structures generated by topographical effects can lead to the formation of strong nonuniformities in the sediment deposit. Results from a parametrical study are discussed, based on two-dimensional simulations of depositing currents produced by a lock-exchange configuration flowing through a minibasin, in order to quantify the effects of the geometrical parameters and particle settling speed on the sediment deposit fields. The over-spill and lateral deposit profile is studied for flows passing through meandering channels with the continuous inflow and outflow from the system.

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