

Abstract Submitted
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Sediment-laden density currents propagating down slopes into stratified ambient SENTHIL RADHAKRISHNAN, KEVIN SCHMIDMAYER, ECKART MEIBURG, UC Santa Barbara — Intrusions can form when sediment-laden gravity currents propagate down the continental slope into the density stratified ambient ocean. As the particles settle from the initially bottom propagating sediment-laden current, its bulk density decreases, and it eventually lifts off the ground to propagate as an intrusion current. Numerical simulations are performed to study such currents in the lock-exchange configuration. The flow characteristics of the currents, such as their front speed, their lift-off location and their deposit profiles are analyzed as functions of particle size, ambient strength and Reynolds number. As a general trend, currents with larger particles lift off earlier to form intrusions, and they propagate closer to the top surface as compared to currents with smaller particles. We furthermore compare our simulation results with laboratory experiments of Snow and Sutherland (2014).

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