

Abstract Submitted
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Classification of dense currents over rough walls¹ RAGHIB CHOWDHURY, KIRAN BHAGANAGAR, University of Texas, San Antonio — Direct numerical simulations and RANS models have been used as a tool to simulate density currents over rough-walls consisting of cylindrical and sinusoidal roughness geometries with different spacing (λ) for given height (k) of roughness elements. Scaling laws of front velocity and locations in terms of the spacing between the roughness elements for sinusoidal shaped and sinusoidal roughness element have been obtained. Flow structures for sinusoidal roughness cases revealed that the wake generated at the valley region for sinusoidal or space between the cylinders plays a role on turbulent mixing which leads to reduction in frontal velocity. An important conclusion of the present study is different scaling exist for the k- type and d-type roughness.

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