Abstract Submitted
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Buoyant Jets in Stratification; Mixing Efficiencies, Entropy Conditions and Wall Effects[1] CHUNG-NAN TZOU, ROBERTO CAMASSA, MARLOW DURBIN, RICHARD MCLAUGHLIN, JEREMY WARD, COLE WHETSTONE, BRIAN WHITE, UNC Joint Fluids Lab, UNC JOINT FLUIDS LAB TEAM — An exact integral solution to the steady buoyant jet closure model in linearly stratified ambient environment is derived so that in the limit of a sharply stratified environment an entropy (nonlinear jump) condition can be established. Comparing the density evolution for the buoyant jet in the extremes of linear and sharp stratification using experiments and exact formulas, mixing efficiencies can be assessed. In turn, wall effects are explored experimentally in sharp stratification and compared to the closure theory. Lastly, the modeling of entrainment in these systems will be revisited.

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