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Experimental Study of Mixing dynamics in Stratified Jet DUO XU, JUN CHEN, Purdue University — Stratification due to density difference or temperature difference modifies flow structures significantly. In order to characterize the mixing process in stratified flows, momentum and scalar flux terms are to be analyzed. In this study, Particle Image Velocimetry (PIV) and Planar Laser Induced Fluorescence (PLIF) are applied to simultaneously measure velocity and density fields generated by a horizontal stratified turbulent jet. The effects of stable stratification and unstable stratification are examined. Flow dynamics at two characteristic Richardson numbers is analyzed to by examining the development of flow statistics. The dataset is also applied to test different mixing models.

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