Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

Laboratory Investigation of Turbulent Mixing in a Stratified Environment at Different Richardson Numbers JUN CHEN, PHILIPPE ODIER, MICHAEL RIVERA, ROBERT ECKE, Los Alamos National Laboratory — The mixing processes in stratified environments have a broad application in geophysical flows, e.g. oceanic overflows. A laboratory apparatus is built to investigate the small-scale flow structures and the dynamics of mixing in a stratified environment. A gravity current is generated inside a water tank, moving along an inclined plate into a denser environment. Velocity and density are measured using simultaneous PIV and PLIF measurements. The dynamics of mixing in the non-stratified case and for different Richardson numbers is evaluated. The results are used to explain the different flow patterns observed. The effects of turbulence decay and stratification are also investigated by studying various terms in the energy budget.

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Date submitted: 03 Aug 2007 Electronic form version 1.4