

Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

Experimental study of entrainment in a gravity current via a combined Scanning PTV/LIF-technique DOMINIK KRUG, MARKUS HOLZNER, BEAT LÜTHI, MARC WOLF, WOLFGANG KINZELBACH, ETH Zurich, ARKADY TSINOBER, Tel Aviv University — In this study, we report experimental results on small-scale entrainment characteristics in an inclined dense gravity current. The measurements were performed at $Re = 3700$ and a bulk Richardson number of $Ri = 0.26$. In an investigation domain located at the average interface position between turbulent and non-turbulent flow the instantaneous velocity and density field were obtained through simultaneous Scanning Particle Tracking Velocimetry (PTV) and Scanning Laser Induced Fluorescence (LIF). The data allow us to study the influence of buoyancy on small scale physics governing the turbulent/non-turbulent interface and entrainment, e.g. the contribution of the baroclinic torque to the local entrainment velocity.

Dominik Krug
ETH Zurich

Date submitted: 29 Jul 2013

Electronic form version 1.4