Geophysical Research Abstracts,
Vol. 11, EGU2009-13493, 2009
EGU General Assembly 2009

Mixing efficiency of Rayleigh-Taylor Reactive Flows

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A comparison of experiments where a dense fluid is accelerated against a lighter fluid is performed showing the dependence of the mixing efficiency with the Atwood number as well as the role of the initial conditions on the final mixing efficiency of the overturning flow. Both stable and unstable initial conditions are compared using self-scaling and multifractal techniques to investigate the evolution of the mixing front and the final mixing efficiency. A chemical reaction between acid and basic layers is used to enhance by means of phenolphtalein the areas contributing most to mixing.