



## **Turbidity current ignition processes**

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In this work we describe a detailed experimental study of the generation and evolution of a sediment laden turbidity current released at the end of a 4 meter tank. The structure of the head is analyzed investigating the transition from a momentum to a buoyancy dominated flow. The homogeneous or linearly stratified fluid environment modifies the advance of the head of the turbidity. Grid turbulence on a sediment layer is used to evaluate the lift off energy and the formation of vertical layered structures by both thermal and mechanical stirring is discussed in terms of the Phillips(1972) re-laminarization mechanism. Spectral analysis is performed on the digitized shadowgraph and pearlescence tracers used to enlight the flow patterns. Relationships between the type, frequency and characteristics of basic turbulent instabilities, and the characteristics of the flow are presented. The fractal aspects of turbulent isolines is compared with spectral analysis and the aspect ratio of the patterns is described in terms of Rayleigh and Richardson numbers.