



## **Sediment deposition and deposit growth at the base of turbulent flows**

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Experiments were carried out in an annular flume in order to investigate the effect of deceleration time on sediment deposition style and deposit character from a waning flow. This is important for understanding and interpreting vertical grading patterns in turbidites. All of the experiments comprised non-cohesive glass ballotini in the grain-size range 45 to 250 microns and at a concentration of 10 percent by volume. The deposits produced by these flows had a characteristic vertical structure, comprising a very poorly normally graded base with an abrupt transition into a strongly normally graded top. Some flows showed the development of an inversely graded layer at their base that appears to result from shearing and sorting of a thin layer of grains along the base of the flow prior to deposit build-up. The development of sedimentary structures particularly laminations, was found to be suppressed, at sediment load fallout rates exceeding 0.4 mm/s. Our results have implications for improving the settling laws used in numerical modelling of deposition from natural flows such as turbidity currents, and also for accurately interpreting the dynamics of flows from the outcrops that they leave behind.