



## **Formation of levees in a laboratory dry granular flow**

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The classical "channel-levees" deposit morphology observed after natural granular flows, such as rock avalanches or pyroclastic flows, is investigated in simple flow geometry laboratory experiments. Granular material is released on a inclined plane at a constant mass flow rate and image analyses allow to study the temporal evolution of both morphological and dynamical characteristics with respect to the values of the mass flow rate and the slope angle. Although the mass flow rate remains constant all along the experiment, the morphology of the flow evolves with time : the granular flow slowly enlarges while its thickness decreases.

We show that the levees commonly observed along the sides of the deposit upon interruption of the flow, disappear for long flow durations. We demonstrate that the morphology of the deposit builds up during the flow, in the form of an underlying static layer layer, which can be deduced from surface velocity profiles, by imposing the same flow rule everywhere in the flow.