Collapse of a granular column: discrete element simulations and continuum modelling LAURENT LACAZE, EDOUARD IZARD, Institut de Mécanique des Fluides de Toulouse, RICH KERSWELL, University of Bristol — The unsteady dynamics of the collapse of a granular column onto a horizontal plane exhibits a wealth of interesting behaviour typical of granular flows. This canonical flow situation has therefore received attention for the last decade through different experimental and numerical studies. Using 3-dimensional soft particles simulations, the observed behaviour can be faithfully reproduced and the observed scaling laws for the final deposit captured. A coarse-graining procedure is then used to extract models for both the apparent rheology and slip velocity at the base. These are incorporated into a "Saint-Venant"-type code to model unsteady granular collapse in the limit of small aspect ratio.

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