Triggering mechanism of wet granular avalanches
Claude EL TANNOURY, Luc OGER
Irene IPPOLITO, Renaud DELANNAY, Yves LE GONIDE
1. Université Rennes1, Institut de Physique de Rennes, UMR 6251, Milleux Divisés, Rennes, France.
2. Universidad de Buenos Aires, Facultad de Ingeniería, Grupo de Medios Porosos, Buenos Aires, Argentina.
3. Université Rennes1, Géosciences Rennes, UMR 6118, Dynamique, Imagerie et Modélisation des Systèmes Environnementaux, Rennes, France.

Introduction
We study experimentally the triggering mechanism of granular avalanches. The dynamic of destabilization has three regimes: (1) a regime of small independent and localized rearrangements followed by (2) a regime of collective and successive motions of grains, called ‘precursors’, which appear at quasi-periodic-tilting angles then (3) the avalanche which occurs at the maximum stability angle.

We focus on the effect of relative humidity, showing that it strongly affects the avalanche angle and precursors dynamics. We also show a dependency with other parameters, such as grain size and height of the granular bed.

Principles

Conclusions

Perspectives

References