



Orientation of elongated particles flowing down an incline

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Understanding the micromechanics of mass-waste events is a difficult but important task if we want to improve runout zone geometry predictions in the future. Ordering of the particles may cause significant changes in the flow properties e.g. by changing the effective friction in the system.

We have investigated experimentally the rotation and alignment of elongated particles flowing down an incline. A complete 3 dimensional reconstruction of grain orientations was obtained using two synchronized fast cameras and a complex image analysis algorithm. The shear rate dependence of the ordering process was explored by changing the plane inclination. In order to see the effect of particle alignment on the flow field, we compared these results to control experiments made with spherical particles.