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Rheophysics of dense snow flow

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We investigate experimentally the rheology of dense snow. The experimental set-up at the "Col du Lac Blanc" is a chute 10 m long and 0.2 m wide which allows the generation of dense flows of natural snow under reproducible condition. The variation of the chute slope between 30° and 45° highlights three flow regimes : stopped flow, accelerated flow and steady and uniform flow in between these two limits. The measurements of velocity profile and basal stresses in several steady and uniform flows allow us to explain the rheological behavior of dense flow.