A computational model of dry slab avalanche release.

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Dry slab avalanches release with the failure of a weak layer underlying a thick cohesive slab. Ideas from fracture mechanics have been used to study this process but in all but the simplest cases this approach does not yield analytical solutions. A computer model has been developed which allows for the spatial variability of this weak layer, stress re-distribution between weak and strong regions and rupture of the overlaying slab. Two of the main results of the model are the dramatic knock down effect that strength variations have on slope stability and the distribution of avalanche size. Under the correct conditions this has a power law distribution, as is found in nature. Other areas investigated are the nature of the critical flaw, precursors to failure and the effects of time healing due to fast metamorphism.