



Effects of triggering mechanism on snow avalanche slope angles and slab depths from field data

David M. McClung

Department of Geography, University of British Columbia, Vancouver, B.C., Canada

Field data from snow avalanche fracture lines for slope angle and slab depth (measured perpendicular to the weak layer) were analyzed for different triggering mechanisms. For slope angle, the results showed that the same probability density function (pdf) (of log-logistic type) and range (25 - 55 degrees) apply independent of triggering mechanism. For slab depth, the same pdf (generalized extreme value) applies independent of triggering mechanism. For both slope angle and slab depth, the data skewness differentiated between triggering mechanism and increased with applied triggering load. For slope angle, skewness is lowest for natural triggering by snow loads and highest for triggering from human intervention. For slab depth, the skewness is lowest for natural triggering and highest for a mix of triggers including explosive control with skier triggering being intermediate. The results reveal the effects of triggering mechanism which are important for risk analyses and to guide avalanche forecasting.