

## DEPTH HOAR GROWTH RATES NEAR A ROCKY OUTCROP

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**ABSTRACT:** Observations of slab avalanche releases in alpine terrain have led to the hypothesis that rocky outcrops can influence the spatial distributions of temperature and heat flow in dry alpine snow covers, and thus control the local distribution of depth hoar. We investigate the effects of terrain on crystal growth by using a two-dimensional finite-element model of heat flow coupled with a model of crystal growth from vapor. We used the model to examine the influence of snow properties, terrain geometry, and snow depth on this phenomenon. The effect is stronger in the early winter than in the late winter because the rock has then had time to cool. In all cases we found that depth hoar growth occurs preferentially over the rock. This suggests that snow pit investigations made over soil can be misleading if rocky outcrops are present. (More complete reference in *J. Glaciology*, 7/98)

**KEYWORDS:** snow crystal growth, snow metamorphism, snow crystal

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