

# **Avalanches and Mountain Forests in the Stubai Valley (Tyrol)**

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## **ABSTRACT**

The paper deals with the problem of avalanche formation and avalanche tracks in mountain forests. Especially the defoliation of trees in protection forest caused by aging, browsing or inappropriate management may accelerate snow gliding and lead to potential avalanche starting zones, too. Purpose of this study is to identify these gliding areas and starting zones and to show the effects of new avalanche tracks (extension of hazard zones ...).

To find out if avalanches are possible in openings and low density forests it will be necessary first of all to concentrate on snow cover measurements [because snow slab release depends on structure of snowpack (investigations by Salm and Gubler showed that the existence of an expanded weak layer is a necessary condition for the formation of slab avalanches)].

Our study field (35 km away from Innsbruck in the Stubai Valley) was situated in a larch stand near to the timberline (about 1900 m, aspect S - SW); 4 different measuring positions (dense forest, opening, low density forest, open field) were selected.

First results showed that both the conditions for the formation of weak layers and increasing glide rates are possible in gaps and openings with a critical size. Structure of snow cover also depends on canopy density, respectively stand density.

On basis of the mentioned investigations potential avalanche starting zones in forest stands could be located in the relevant aerial photos. New risk maps showing these fracture zones and snow gliding areas within the forests of the Stubai Valley are elaborated.