Post wildfire analysis of avalanche hazard in Canada

Brian Gould*, Cam Campbell and Scott Thumlert

Alpine Solutions Avalanche Services, Squamish, British Columbia, CANADA
**Corresponding author, e-mail: bgould@avalancheservices.ca*

ABSTRACT

In recent years, western Canada has suffered some of the worst forest fire seasons in history in terms of areal extent of forest burned. Fires have impacted several mountainous areas near towns and highways that have been previously assessed for avalanche hazard. Along with slope incline, forest cover is considered a key terrain feature when considering where avalanches may initiate and flow, due to its effect on the radiation balance and the structural support it provides. Forests also provide a retarding effect to avalanches in motion reducing the momentum and shortening runout distances. Once burned, these characteristics can be altered for several decades, bringing into question the level of protection provided by remaining stems. Furthermore, in the short-term dead trees can be uprooted or broken by a flowing avalanche, increasing the density and impact pressure of the flow. Considering these factors, avalanche paths affected by wildfires require reassessment to determine and quantify the effect of deforestation on avalanche hazard. Factors involved in re-assessing avalanche hazard for burnt paths are explored and two examples of reassessments are provided.