

Avalanche hazard in urban snow storage sites in Province of Quebec, Canada

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ABSTRACT

Snow avalanches are a severe natural hazard, threatening recreation, transportation, industries, property and lives in Canada with more than 700 fatalities since the mid-1800s. Of these, many incidents were reported on the short slopes of eastern Canada. Indeed, archival research, coroner's investigations and newspaper searches indicate that avalanches are the second most deadly natural hazard after landslides in the Province of Quebec. Most of these accidents have occurred near residential or public buildings, highlighting the danger related to snow mass wasting on very short slopes (< 70 metres of relief), but also their potential in infrastructural damage. In addition, there is no structural protection nor any systematic daily forecasting procedures to reduce avalanche risks, as compared to western Canada. In January 2017, a fatal avalanche accident occurred in an urban snow storage site. The inventory of these avalanche-threatened areas has not been completed but it is likely that they are more widespread than previously thought. Indeed, it appears that all the major cities in the Province of Quebec are struggling with this problem in several snow storage sites resulting from the cleaning of the roads. The preliminary results about snow characterization and stability in storage sites are presented and discussed.