

Towards a GIS-based hazard assessment along the Quebec City Promontory, Quebec, Canada

F. Baillifard, M. Jaboyedoff & J.-D. Rouiller
Crealp (Research Center on Alpine Environment), Sion, Switzerland
R. Couture
Geological Survey of Canada, Ottawa, On, Canada
J. Locat, P. Locat & G. Robichaud
Laval University, Quebec City, Qc, Canada
G. Hamel
Ville de Québec, Quebec City, Qc, Canada.

ABSTRACT – The city of Quebec is built on a promontory, oriented south-eastwards along the northern shore of the St.Lawrence River. Since 1775, 53 landslides occurred, causing 88 fatalities and injuring 70 people. Moreover, about twenty houses were destroyed and about fifteen were damaged. The analysis of the landslide database makes it possible to extract the main instability factors, that are integrated in an original GIS-based method. The proposed method enables to assess the hazard along a selected profile. The simulated landslide frequency not only shows a good agreement with the observed one, but also makes it possible to individuate sections with a high landslide susceptibility. Moreover, frequencies can be calculated, that furnishes the base for risk calculations.