



## **Past, present and future slope dynamics under changing climate and society: case studies in Nunavik, northern Québec, Canada**

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Slope processes are active within rolling plateau landscapes of Nunavik, northern Québec, Canada. Escarpments are seldom; however snow avalanches and sudden mass movements are obvious from the study of slope deposits. According to archives and literature, Kangiqsualujjuaq, one of the 14 Inuit villages in Nunavik, is the only community that has been stricken by a dreadful snow avalanche: nine people died and 25 were injured on the night of December 31st, 1998-January 1st, 1999. At this time, the inhabitants were gathered to celebrate New Year's Eve in the school gymnasium that was located within the deposit zone of a short snow-avalanche track. The memory of this event is locally long-lasting, however the perception of hazard is impeded by the lack of systematic data collection regarding slope activity in locations where hazard could easily shift to risk due to the vulnerability of settlements or short transportation corridors around settlements or within National Parks.

From the case study of three sites, around Kangiqsualujjuaq, in the surrounding of Umiujaq and in Lac-à-l'Eau-Claire inside National Park Tursujuq, we document the constraints of slope processes on the community expansions and human activities, and the methods developed to monitor changes on slopes all year-round, from the setting of automatic time lapse cameras to morphometric properties slope deposits.

Results emphasize the importance of low frequency long runout slope processes in the development of slope deposit since 7900-5800 BP, depending on locations in Nunavik. It also underlines the recent challenges of a fast growing demography in newly built villages, Inuit people being sedentary for only 70 years at maximum. Climate and global changes prompt to better decipher the physical aspects of gravity processes on slopes to better understand societal stakes and encourage conscious decision-making.