Geophysical Research Abstracts
Vol. 14, EGU2012-12482, 2012
EGU General Assembly 2012

Combination of measurement methods to investigate snow drift and blowing snow parameters

A. Prokop (1), V. Vionnet (2), F. Naaim (3), G. Guyomarc'h (4), and H. Bellot (3)

(1) BOKU – University, Vienna, Institute of Mountain Risk Engineering, Vienna, Austria (alexander.prokop@boku.ac.at), (2) Météo France/CNRS, CNRM-GAME URA 1357, Toulouse, France, (3) Irstea, UR ETGR, 2 rue de la papeterie, BP 76, 38402 Saint-Martin d'Hères, France, (4) Météo France/CNRS, CNRM-GAME URA 1357, CEN, St. Martin d'Hères, France

The investigation of the spatial variability of snow depth in high alpine areas is an important topic in snow hydrology, glacier and avalanche research. In a highly structured alpine terrain, the snow accumulation is highly dependent on orography during the winter. The dependence is not only on elevation, aspect and slope at the point of interest but also on all features in the surroundings which influence the near-surface wind field. The locally convergent and divergent flow patterns cause snow redistribution. Not only is previously deposited snow influenced, but also snow precipitation is non-uniformly deposited because of the wind.

The current study presents the combination of two approaches to measure parameters of drifting and blowing snow - in particular the flux, to determine the amount of snow particles within the wind flow and the resultant erosion and deposition behavior of those particles using terrestrial laser scanning by creation of snow height maps. To measure erosion and deposition behavior and flux of different events such as snow drift without snowfall and snow drift with additional snowfall allowed us determining the impact of snow particle concentration to the measured process.

We present the results of the terrestrial laser scanning campaign at the experimental site, Col du Lac Blanc (2700ma.s.l.), French Alps and we discuss how the particle flux influence the deposition behaviour at different location within the test site.