Toward an Integration of a Snowdrift Modelling in the Operational Avalanche Forecast

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For several years the CEN has measured, studied and developed specific tools concerning drifting snow effects. The final objective of this work is to improve the operational models dedicated to the avalanche risk forecast in France. To reach this aim, numerous sensors adapted to the research subject were carried out in an experimental site of high altitude. In addition, specific measurement campaigns were organised to complete the knowledge on the wind speed thresholds associated with snow particles of the surface.

All these works allowed to develop two versions of a snowdrift model:

- **Sytron1** simulates the erosion and accumulation of two modelled snow profiles on the opposite slopes of a virtual crest undergoing wind effects. This model takes into account the modifications of snow morphology, the amount of snow moved by the wind, the densification of the accumulated snow, ...

- **Sytron2/3** (based on the previous one) has been designed to simulated the snow distribution on a limited domain (DEM with a mesh of 45 m) by taken into account an estimated wind field.

The both versions of Sytron have been validated by using the data of the experimental site.

The subject of this paper is to estimate the contribution of these models, at spatial various running scales:

- on extreme avalanche situations of the past (eg Chamonix - France, February 1999)
- in the framework of the operational models for the avalanche risk forecast in France.