Geophysical Research Abstracts,
Vol. 11, EGU2009-6959, 2009
EGU General Assembly 2009

$\alpha - \beta$ model: Can we learn more from the statistical avalanche model with respect to the dynamical behavior of avalanches.

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Hazard and risk assessment in avalanche prone areas involves the estimation of the runout of potential avalanches. Methods for determination of the runout may be grouped into two groups: 1) based on statistical methods such as the well known $\alpha - \beta$ model or 2) based on numerical avalanche models such as the PCM-model or Voellmy-Salm type models (just to name the more traditional ones). The later method has the advantage that besides the runout also information on velocity and impact pressure distributions along the avalanche track can be obtained. However, the success of the dynamical models depends on the knowledge of suitable rheological models and their parameters.

The statistical $\alpha - \beta$ model was developed at NGI and governs maximum runout distance solely as a function of topography. The runout distance equations are found by regression analysis, correlating the longest registered runout distance from several hundred avalanche paths to a selection of topographic parameters. Similar regression analysis were also performed for different regions of United States, Canada or Austria.

We re-evaluate the Norwegian and Austrian avalanche data on which the $\alpha - \beta$ model were based with respect to dynamical measures. As all those avalanche data belong more or less to extreme events (i.e. avalanches with return periods of 100 years to more) the dynamical measures can give hints for suitable rheological model for dynamical models suitable for extreme avalanche events.