



The mechanical stability of the snow pack in an avalanche slope by calculating the distributed snow cover energy balance

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The mechanical stability of the snow cover along potential avalanche slopes is strongly influenced by the local meteorological conditions, too. For the investigation of the responsible parameters a distributed energy balance model is combined with a 1-d, 2-layer snow model. Energy fluxes at the snow surface and within the snow pack are calculated.

A test site at Wattener Lizum (Tyrol, Austria) is adapted for the European research project GALAHAD. Two energy balance stations extended with snow depth sensors provide the basic model input. Subsidiary measurements of surface temperatures and snow depths are available at two (three) additionally sites in the field. Moreover, estimates of the spatial distribution of snow depth and snow water equivalent are provided by remote sensing instruments (terrestrial laser scanner and ground based interferometric synthetic aperture radar) for input and verification.

Attention is focused on parameters that can reduce the stability of the snow pack like surface hoar, depth hoar, or critical melt and accumulation rates. The model results allow for outlining slope areas, where these parameters play a potentially great role. Additionally the poster gives an overview of the energy balance algorithm and the snow model in general.