



## **Parameterization of a two dimensional snow pack model**

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A new 2D snow pack model has been developed, to derive snow temperatures and the settlement of the snow pack. The study is focused on the boundary conditions and parameters of this model.

Contrary to a 1D model, which represents the snow pack of just one point within an area, a two dimensional model aims to simulate the snow pack of an arbitrary cross section on a slope. To provide all relevant input parameters for a 2D snow pack model, more measurements than are normally carried out by an automatic gauging station are required. It is therefore necessary to extrapolate the measurements of the reference gauging station(s) to the surface boundary of the cross section, including long- and shortwave radiation. Using terrestrial laser scanners, the spatial snow depth distribution has been measured and the snow depths along the cross section can be determined.

To improve the quality of erroneous longwave irradiation and emission measurements they were replaced by calculations, derived from atmospheric measurements such as air temperature and relative humidity.

Results of these simulations and comparison with measurements of snow profiles are presented.