



## **Comparison of statistical vs. physically modelled snow cover pattern - validation based on terrestrial images**

O. Roessler and S. Schmidt

Department of Geography, University of Bonn, Germany

In mountains the seasonal snow cover is an important factor for water storage and vegetation patterns. Despite interannual variation of weather conditions, seasonal snow patterns remain relatively stable over the years. It is of great importance to model the snow cover distribution properly. Many models use snow cover distribution maps to model the snowmelt-runoff. Due to lack of data providing high temporal and spatial resolution, many existing models derive the snow cover patterns from meteorological data, scarcely distributed in mountain areas. Recently, the possibility of meso-scale snow cover monitoring based on terrestrial images at a high temporal resolution were explored, enabling statistical analyses (SCHMIDT et al. 2006). The aim of the presented work is to compare statistical and physical based models of snow cover patterns. The statistical model is based on different topographical input parameters which can be derived from a digital elevation model. By contrast the physical model, which is a part of the WaSim-ETH model, calculates the snow cover patterns with complex meteorological input parameters such as temperature, precipitation, and radiation. The results of both models were validated with terrestrial images, which are characterized by a high temporal and spatial resolution and a high spatial accuracy.

### Literature

SCHMIDT, S., J. LÖFFLER, B. WEBER & M. WINIGER (2006): Seasonal Snow Coverage Depletion in alpine Environments – Micro- to Meso-Scale Statistical Modelling. *Geophysical Research Abstracts* 8: 08534, 07998.