



## **Monitoring and modeling of snow accumulation and melt for an Austrian Alpine basin.**

H. Holzmann (1), G. Koboltschnig (2), W. Schöner (3)

(1) Department of Water, Atmosphere and Environment. University of Natural Resources and Applied Life Sciences, Vienna, (2) International Research Society INTERPRAEVENT, Provincial Government of Carinthia, (3) Central Bureau of Meteorology and Geodynamics, Vienna.

(hubert.holzmann@boku.ac.at)

In the frame of the national research project SNOWTRANS the hydrological regime of the Goldbergkees basin was analysed. The research was based on an intensive monitoring program, where snow data (distribution, density, depth) and runoff data were observed during the project period 2004 to 2006. The latter were gained by an automatic discharge gauge providing runoff in quarter hourly time steps. Snow cover data were collected by regular inventories of the technical staff of the meteorological observatory Sonnblick. During the spring periods annual field campaigns provided detailed results of the spatial distribution of the snow cover. Runoff contributions by snowmelt, glacier melt and rainfall were also modelled by different types of hydrological models including distributed (PREVAH), semi distributed (BOKU) and physically based (ALPINE3D) models. The presentation will refer to the application of the first. The meteorological input bas based on the observatory data at the summit in 3106 m a. sl. Some additional temperature loggers and rainfall gauges were distributed over the area of interest. Model calibration and validation was carried out comparing discharge data, snow cover data and mass balance data as well. This type of multi validation approach enabled the optimization of local parameter sets. The computational results showed good agreements with the observed discharge data. The diurnal variability of runoff could be simulated best with combined index methods using temperature and radiation data. The spatial distribution of snow depth and the depletion pattern

were simulated satisfactory, but showed some local deviations due to wind drift and avalanches, which were not described by the model configuration. In the oral presentation also a brief description of the potential of remote sensing data (MODIS and Landsat) for model verification will be given.