

## **Abstract**

### **Energy budget of the snowpack: Case study of the Bystřice River basin (Krušné Mountains)**

The aim of this thesis is to describe and calculate the energy budget of snowpack which is one of the approaches to snowmelt simulation. The focus is on physical basis of the accumulation and melting of the snowpack. The second aim is to select and apply of such a mathematical expression of the energy budget of snow which provides best fits of the available data set from Hřebečná climatological station in Bystřice River basin in Krušné Mountains. Calculation of point snowmelt and rainfall data measured for the winter season 2011/2012 were used to simulate the snow water equivalent. As the main heat flows that affect the melting of snow in the area have been identified flows caused by shortwave radiation and latent heat. The development of heat flows during the winter period in 2011/2012 was founded. Most obvious development is demonstrated by the proportion of short-wave radiation to the total energy budget. The defects of the measurement of daily precipitation amounts and measurements of snow mass were revealed. Therefore the requirement of identifying the causes of incorrect measurements of snow mass at the climatological station Hřebečná was revealed.

#### **Key words:**

snowpack, snowmelt modelling, energy budget of the snow, snow water equivalent