

Abstract

Meteorological conditions are an important factor affecting the speed of snowmelt. Their impacts have been changing according to physical-geographical factors such as elevation, slope of the terrain, slope orientation and vegetation, affecting energy balance of the snowpack. The calculations were made using data from four automatic stations in the Šumava Mountains, namely the Vydra river-basin. These stations measure individual meteorological aspect and snow properties. Based on these data and pre-defined conditions, 136 melting events were selected. The melt factors were calculated based on *degree-day* approach. Similarly, the melt rates were calculated from the snow water equivalent decrease and snowmelt event duration for each snowmelt event. The correlation and regression analyzes were used to determine the effect of each meteorological factor on the snowmelt speed. The analyses proved the highest dependence of the snowmelt speed on the precipitation amount (the value of the Spearman's rank correlation coefficient r_s reached 0.54 for the melt factor and 0.68 for melt rate). There is more substantial difference in the effects of meteorological conditions if we compare the winter season from November to February and the spring snowmelt season from March to May, while the highest snowmelt variability was seen at the station placed at the lowest altitude in Modrava.

Key words: melt factor, melt rate, snowmelt, degree-day approach