Snow depth variability at the plot scale: Assesment of topography and vegetation influence

Abstract

This master thesis deals with the evaluation of snow depth variability at the plot scale. It focuses on influence of topography and vegetation factors as slope, exposure, curvature, solar radiation and leaf area index. There is also assesment the impact of the size scale. Measurement was carried out in period of accumulation and snowmelt in winter 2014/2015 in the Krkonoše Mountains on Hanapetrova glade. To evaluate the effect of selected factors on variability of snow depth there was used multiple linear regresion and other descriptive statistical methods. The research shows that the variability of snow depth during the accumulation is greater in forest which is probably due to vegetation. The dependency was not confirmed by regression analysis. Higher variability of snow cover in the forest was also observed in the melting period. The variability of snow cover increased in the forest in general. The results show that the snow depth variability decreasses with increasing grid size.

Keywords: snow accumulation, snowmelt, topography, vegetation, multivariate analysis