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Snow profile temperature measurements in spatiotemporal analysis of snowmelt in a subarctic forest-mire hillslope

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Abstract

Continuous data on spatial and temporal patterns of snowmelt rates are essential for hydrological studies, but are commonly not available, especially in the subarctic, mainly due to high monitoring costs. In this study, temperature loggers were used to measure local and microscale variations in snowpack temperature, in order to understand snowmelt processes and rates in subarctic northern Finland. The loggers were deployed on six test plots along a hillslope with varying topography (elevation and aspect) and vegetation (forest, transitional zone and mires, i.e. treeless peatlands) during two consecutive winters