

Spatio-temporal Variability of Snowmelt generated by Soil Heat Flux: Implications for Catchment Hydrology

Smith, R.¹; Moore, R.D.²; Weiler, M.³; Weiler, M.⁴

¹University of Zurich, SWITZERLAND; ²University of British Columbia, CANADA;

³Institute of Hydrology, Albert-Ludwigs-University of Freiburg, GERMANY;

⁴Albert-Ludwigs-University of Freiburg, GERMANY



Air temperature & snowpack heat flux controls

Air temperature influences the strength of the snowpack internal heat gradient, which influences partitioning of soil heat flux towards snowmelt versus loss to snowpack heat flux; hence, higher air temperatures during midwinter 2007 resulted in higher rates of midwinter ground melt. Melt also varied synoptically with air temperature variability during midwinter 2007 with a 2-4 day lag. The melt rate varied linearly with air temperature in 2007, but non-linearly in 2008 due to the influence of surface generated melt.

