

NEAR-SURFACE SUMMER HEAT-TRANSFER REGIMES AT ADJACENT PERMAFROST AND
NON-PERMAFROST SITES IN CENTRAL ALASKA

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Observations on soil temperature and a surrogate index of soil water ion concentration were collected during late summer from the upper 50 cm of soil at two adjacent sites in the discontinuous permafrost zone of central Alaska. One site is above permafrost while the other, 13 m away in an area of weak groundwater discharge, appears to have no underlying permafrost. At the permafrost site, temperatures at the surface of the organic mat experienced large diurnal variation, but temperature amplitude was strongly attenuated with depth. At the seep site, pore water saturation is maintained by groundwater seepage, which effectively damps temperature variation over time and depth. In late summer, infiltration of precipitation is an effective method of transporting heat to the base of the active layer and extending seasonal thaw depth above permafrost, but where the soil is consistently saturated it has little impact.