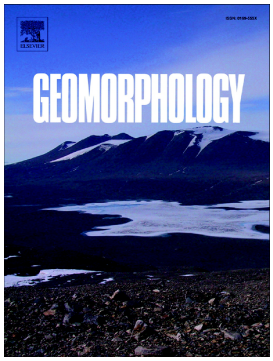

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Creep characteristics and process analyses of a thaw slump in the permafrost region of the Qinghai–Tibet Plateau, China

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Abstract

A thaw slump in the permafrost region of the Qinghai–Tibet Plateau was monitored to investigate typical characteristics of creep positions and processes in combination with soil property analyses. The results show that the thaw settlement exhibits a *contraction effect* in the horizontal direction because of uneven thaw settlement. Slope displacement of creep occurs only in the top 50 cm of the soil. The gravimetric water content, soil porosity, and soil temperature are higher near the thaw slump in thaw seasons compared with the undisturbed soil; however, the shear strength is lower. Melting ground ice releases thaw water that converges along the slope and forms an overland flow at the front part of the gentle slope area and a ponding depression at the slope bottom. The analyses of slope stability using the infinite slope model shows that