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Thermal behaviour of retrogressive thaw slumps over time revealed by ERT - an example from Herschel Island, Canada

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In the last century the number of retrogressive thaw slumps has doubled in some arctic regions, e.g. Herschel Island, Yukon Territory, Canada [Lantuit and Pollard, 2008]. Retrogressive thaw slumps are a common thermocarst landform along the coast of Herschel Island [Lantuit and Pollard, 2005]. However mechanical conditions leading to the evolution of those retrogressive thaw slumps are poorly understood.

For a better understanding of internal thermal processes in these retrogressive thaw slumps we implemented different electrical resistivity profiles (ERT). They cross the focused thaw slump longitudinally and transversally. We compared about 2 km of new ERT-data from 2019 with the same transects from 2011 to gain information about the temperature distribution and the temperature changes in the slump ground.

The aim for our study is to gain a profound understanding of the strong and deep thermal disturbances generated by retrogressive thaw slumps and how they change over time, leading to a possible polycyclicality of these slumps.

Lantuit, H., and W. H. Pollard (2005), Temporal stereophotogrammetric analysis of retrogressive thaw slumps on Herschel Island, Yukon Territory, *Nat. Hazards Earth Syst. Sci.* 5 (3), 413–423.

Lantuit, H., and W. H. Pollard (2008), Fifty years of coastal erosion and retrogressive thaw slump activity on Herschel Island, southern Beaufort Sea, Yukon Territory, Canada, *Geomorphology* 95 (1-2), 84–102.