



## **Non-destructive mapping of soil depth using Ground Penetrating Radar on periglacial slope deposits**

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The soils in the mountainous regions in Germany evolved mainly from the ubiquitously present periglacial slope deposits dominating the surfaces of these regions outside of floodplains. This poster describes how the application of ground penetrating radar (GPR) on periglacial slope deposits can be achieved for different geological parent materials. The investigation of periglacial slope deposits with conventional means of soil mapping in the mountainous regions of Germany is difficult due to the high content of coarse components particularly with regard to the uppermost layer (Hauptlage, LH) and the lower layer (Basislage, LB). GPR is a well suited method to accomplish a faster end-to-end recording of catenas. GPR surveys combined with discrete soil data allow the 2-dimensional mapping of slope deposits distinguishing several layers of periglacial slope deposits. Wave velocities and GPR patterns are determined by calibrations on known soil strata. This enables us to map the distribution and thickness of periglacial slope deposits in the Lahn-Dill-Highlands with GPR. Especially the boundary between the upper layers and LB or in-situ rock respectively can be identified consistently. Additionally the presence of colluvia, which are usually characterised by high water content and low stone content, can be identified. The results from the selected representative sites will be used in the future to offer high resolution spatial data on slope deposit distribution and use-determining soil properties (e.g. available field capacity) to be used for modelling purposes in the Collaborative Research Center (SFB) 299 of the German Research Foundation (Deutsche Forschungsgemeinschaft).