



## **Integrative analysis of mountain permafrost dynamics - examples from mid-latitude high-alpine and high-latitude subarctic periglacial environments**

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The distribution pattern of mountain permafrost is often spatially heterogeneous. Hereby, the patchy permafrost distribution pattern is determined by several factors including the sediment characteristics, the snow cover distribution and duration, the aspect and the former glacier distribution and thermal regime. This known heterogeneity is a challenge for all studies in cryospheric sciences and especially in the field of periglacial geomorphology. Joint application of different methods is considered the most promising approach for investigating periglacial landforms related to ice-rich permafrost for a comprehensive characterisation of permafrost characteristics and geomorphological interpretation of periglacial morphodynamics. Examples are shown from the high-latitude subarctic periglacial environments in northern Sweden and mid-latitude high-alpine environments in Switzerland. Applied methods include geomorphological mapping, 1D geoelectrical soundings, 2D resistivity imaging, geoelectrical monitoring, photogrammetric measurements and subsurface and ground surface temperature measurements. Recent and modern permafrost dynamics comprise aggradation, degradation and permafrost creep.