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Periglacial landforms in Jotunheimen, Norway: Distribution and causal links to permafrost and other factors

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The high-altitudinal plateaus of Jotunheimen in central South Norway, the mountain region home of Norway's highest summits, create a unique and diverse natural environment. The specific gross morphology of Jotunheimen facilitates the occurrence of a variety of periglacial landforms ranging considerably in both dimension and age. The regional distribution of permafrost is one of the major controlling factors for the altitudinal distribution of these periglacial landforms.

The largest individual features of patterned ground, undisputed the regionally most dominant periglacial landforms, are situated on terrain currently underlain by permafrost. They visually appear to be quite relict, despite the occurrence of permafrost, and the exact timing of their formation remains unknown. This example points to additional factors significantly influencing the periglacial landform assemblage, like topography, ground moisture availability, and the local deglaciation history. The lack of a regional overview regarding periglacial landforms in Jotunheimen exacerbates the need for a profound investigation of their altitudinal zonation and potential causal links to climate, permafrost, (de-)glaciation, and other factors.

The compilation of a regional overview based on aerial imagery and a literature review aims, therefore, to reveal further insight into the controlling factors for and mechanisms of periglacial landform development in Jotunheimen. This shall be achieved by creating an altitudinal zonation for periglacial features and highlighting causal links between their spatial/altitudinal distribution and possible influencing factors. In an outlook to future studies this attempt may also provide more detailed information on the regional basal properties of the former Scandinavian ice sheet, the regional/local deglaciation patterns for the Jotunheimen region, and about the exact chronology of formation of the periglacial landforms studied.