10A - Remote Sensing of Permafrost Processes and Impacts on the Environment

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Permafrost is a key component of the northern environment, and it influences major landscape processes including the carbon cycle, geomorphic processes, landscape restructuring, and environmental health. Monitoring surface features of permafrost terrains and typical periglacial landforms are necessary to understand the current and future dynamics of permafrost degradation. Remote sensing techniques are the best to monitor changes across scales, as some of these landforms are typically found in extremely remote and inaccessible locations. Satellite assessments can also bridge the gap between field observations and modelling efforts and support the comprehension of the effects of climate change.

In this session, the entire permafrost community is invited to submit unique advanced remote sensing applications that address evolution and dynamic disturbance processes in permafrost landscapes, both in lowland and mountain regions. We are open to a wide range of remote sensing approaches, including short- and long-term monitoring that makes use of time series analysis, airborne, spaceborne, and machine learning as well as unmanned aerial systems, and is validated from field-based and/or modelling analysis. We also welcome research on landscape disturbances, such as permafrost thaw, active-layer degradation, and talik formation, which affect periglacial landscape processes and the environment.

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