



Monitoring Permafrost Conditions & Processes

12D - Multiscale Observations of Permafrost Landscape Dynamics

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Permafrost landscapes are continually shaped and reshaped by interdependent geomorphic, hydrological, and ecological processes. In light of changing climatic conditions and intensifying disturbance regimes, increased rates of permafrost landscape changes have been reported. However, the spatial distribution, drivers, and controls on these thaw processes remain poorly constrained across spatial and temporal scales. Multiscale observations of dynamic permafrost processes from plot to landscape scales are critical for determining the spatial heterogeneity, scale dependence, and interactions and feedbacks with the water, energy, nutrient, sediment, and carbon cycles.

In this session, we aim to advance permafrost research through novel multiscale observational techniques and analyses. We solicit contributions that (1) quantify geomorphic (e.g., thermokarst, coastal erosion), hydrological (e.g., wetland dynamics) and ecological (e.g., postfire succession, shrub expansion) processes and their interactions; (2) elucidate the drivers, controls and consequences of permafrost landscape change through model-data integration; and/or (3) establish new sensing modalities or analysis techniques that bridge spatiotemporal scales.

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