



## Monitoring Permafrost Conditions & Processes

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### 12C - Sentinels of Permafrost Thaw Across Natural and Human Systems

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Permafrost thawing - from localized and abrupt to gradual and widespread - impacts Arctic hydrology and the mobilization of mineral and organic materials, from formerly frozen soils to terrestrial ecosystems and surface water bodies. Mineral and organic components interact along this lateral continuum from soils to aquatic systems, affecting biogeochemical cycles with strong spatial and temporal heterogeneities. These climate-induced impacts of permafrost thaw also affect the quality and quantity of food and water resources at the core of Northern Indigenous culture and livelihoods, including drinking water, hunting, and fishing.

This session aims to foster a holistic perspective on the multifaceted impacts of permafrost thawing on natural and human systems across different spatial and temporal scales, thereby developing a set of indicators (or 'sentinels') of the vulnerability of soils, surface- and groundwater. We welcome contributions from all fields of physical and engineering sciences to approaches integrating Indigenous Traditional Knowledge, and from field-based studies to modelling efforts and monitoring programs. Interdisciplinary and transdisciplinary perspectives on permafrost as a part of sociocultural-ecological systems are especially valued contributions to the session.

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