

Standardized monitoring of permafrost thaw: a user-friendly, multi-parameter protocol

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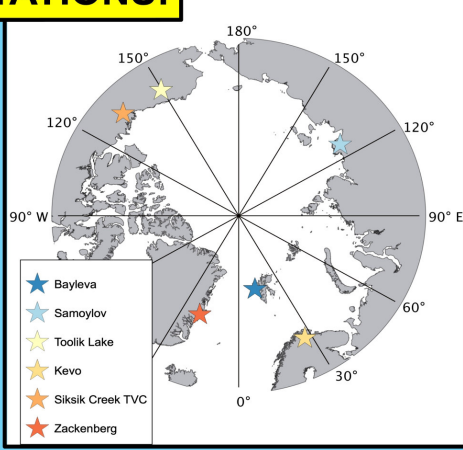
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SCAN ME:

YouTube tutorials iOS Android

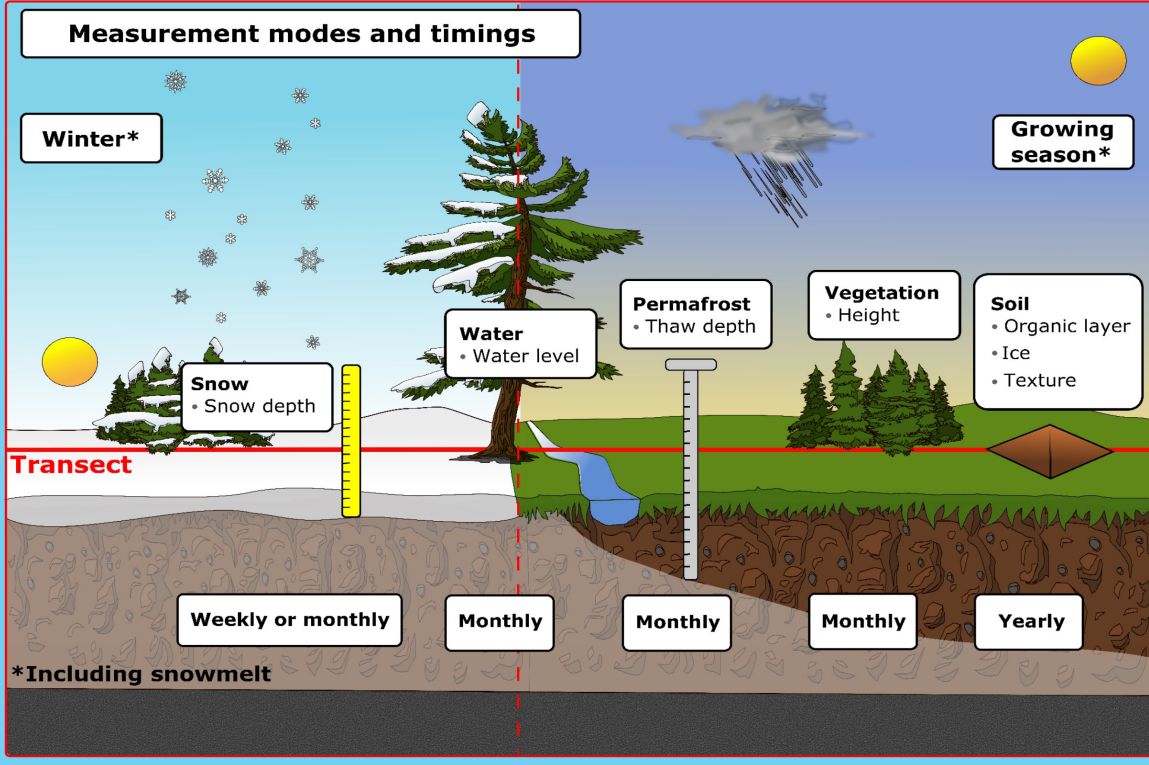
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ABSTRACT:

Climate change is destabilizing permafrost landscapes, affecting infrastructure, ecosystems and human livelihoods. The rate of permafrost thaw is controlled by surface and subsurface properties and processes, all of which are potentially linked with each other. Yet, no standardized protocol exists for measuring permafrost thaw and related processes and properties in a linked manner. We developed a protocol, for use by non-specialist scientists and technicians, citizen scientists and indigenous groups, to collect standardized metadata and data on permafrost thaw. Our protocol addresses the need to jointly measure permafrost thaw and the associated surface and subsurface environmental conditions. The parameters measured along transects are: snow depth, thaw depth, vegetation height, soil texture, and water level. The metadata collection includes data on timing of data collection, geographical coordinates, land surface characteristics (vegetation, ground surface, water conditions), as well as photographs. Our hope is that this openly available dataset will also be highly valuable for validation and parameterization of numerical and conceptual models, thus to the broad community represented by the T-MOSAIC project.

Fig.: Spheres (snow, water, permafrost, vegetation, soil) with the associated parameters, measurement modes and observation timings along one transect over one seasonal cycle.



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