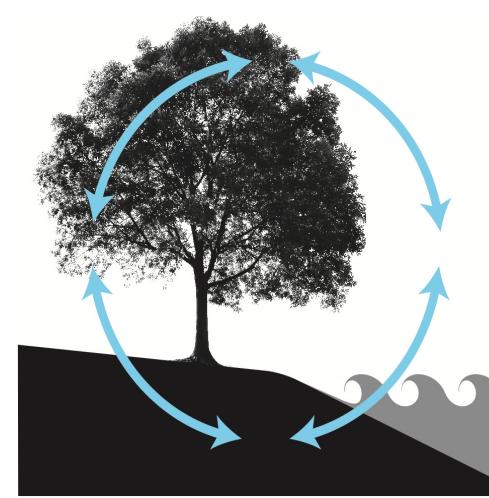


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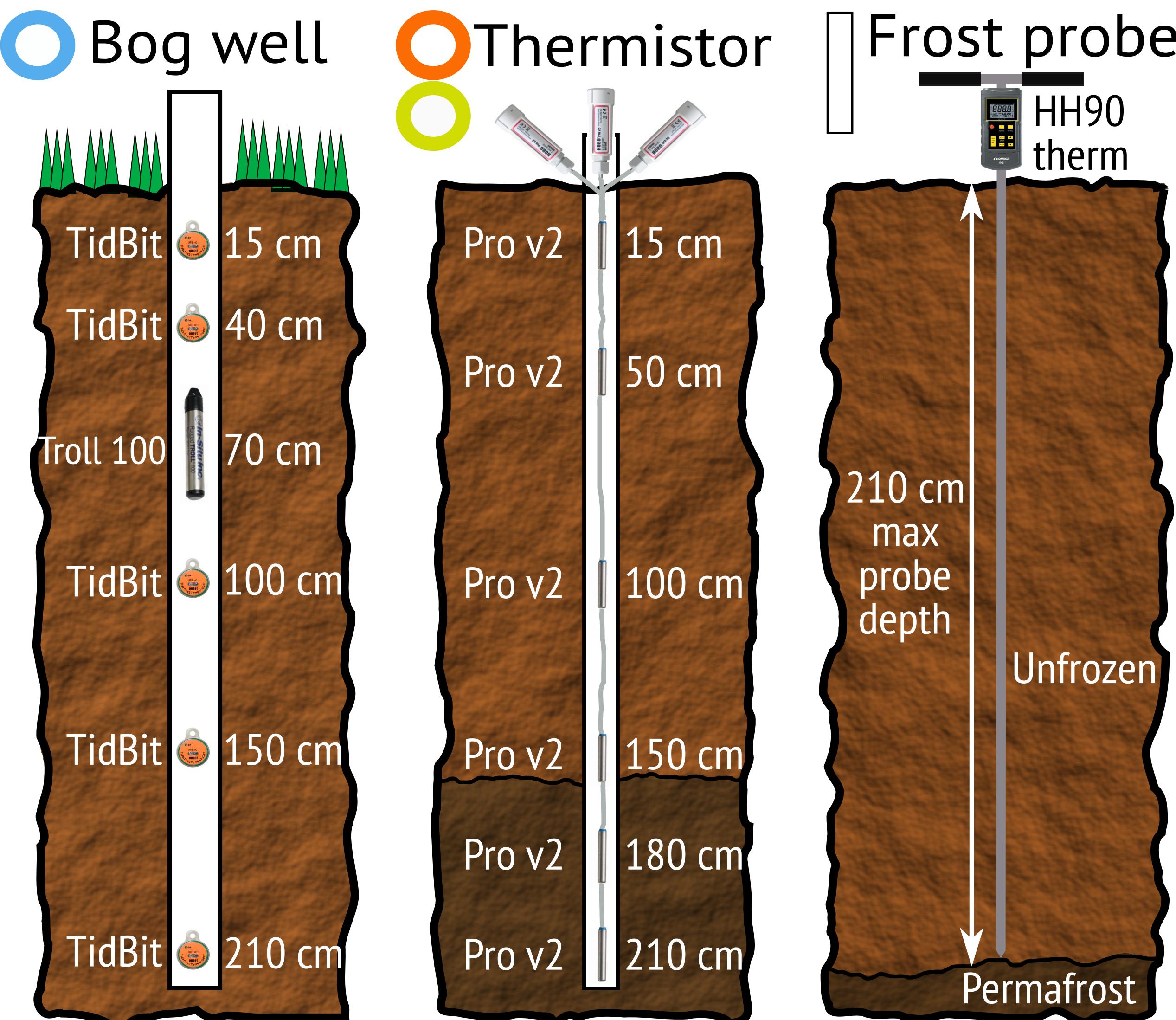
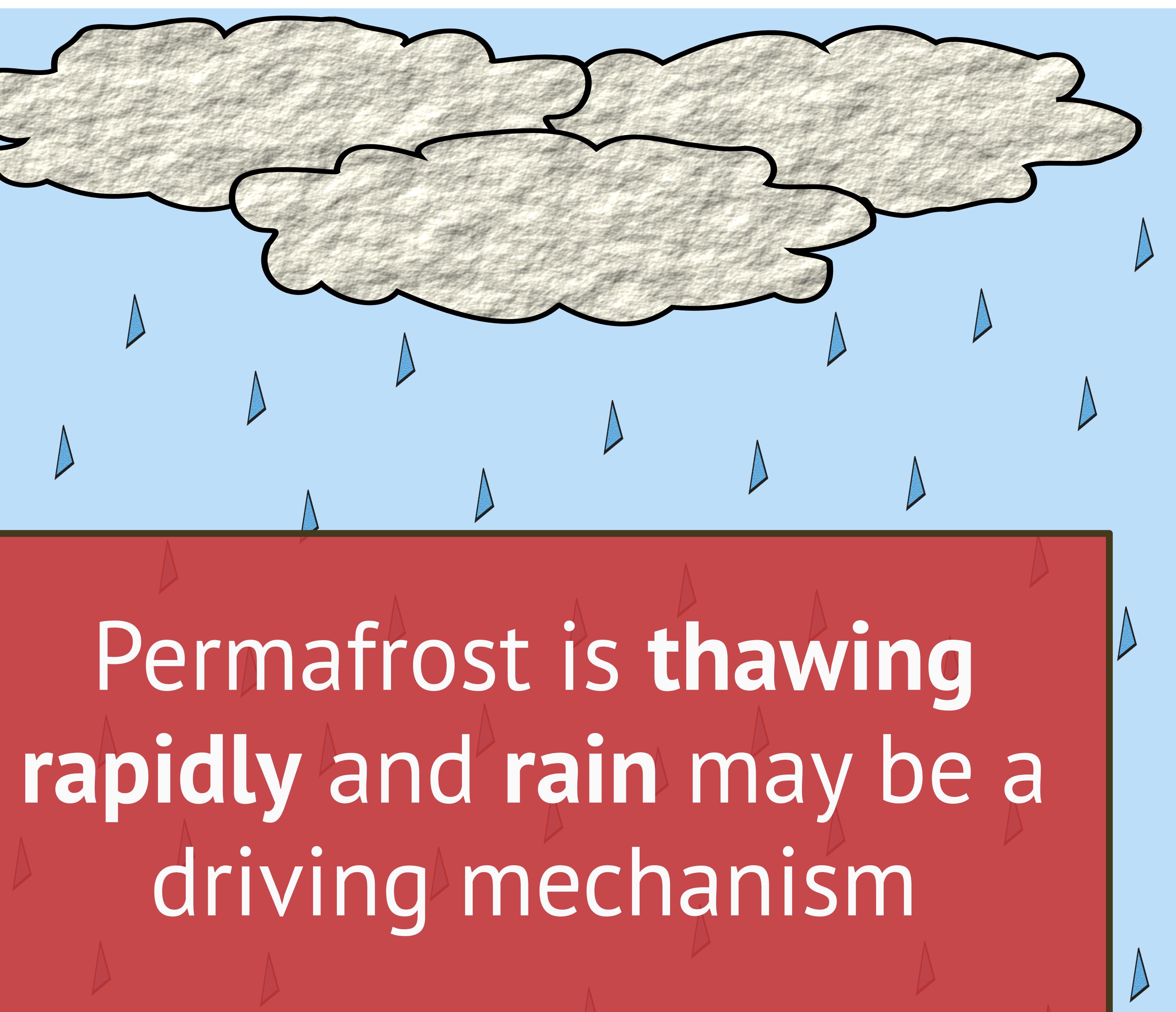
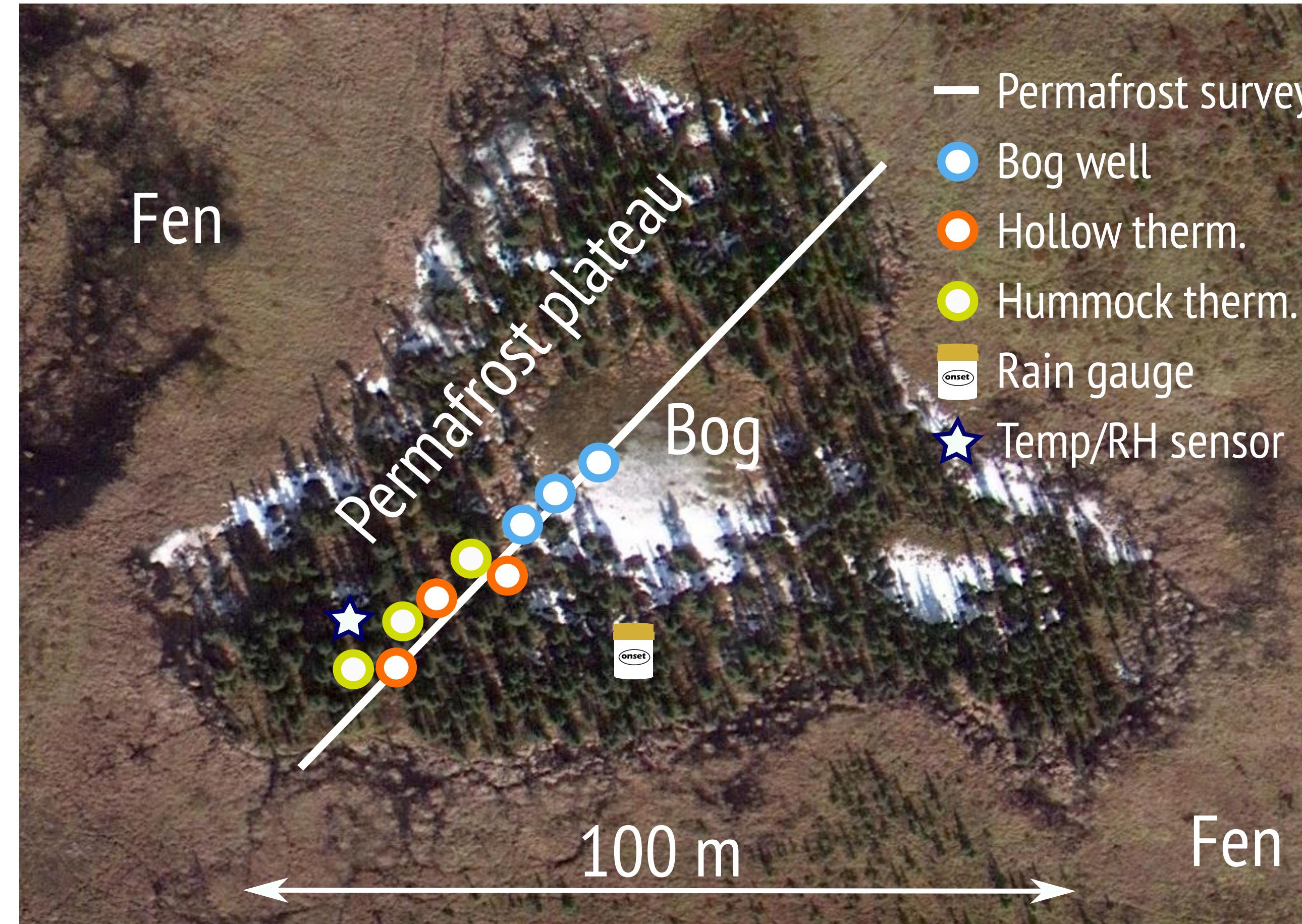
Thaw dynamics of a rapidly degrading isolated permafrost plateau in south-central Alaska

Joel Eklof (U. Wash)  @EklofJoel, Mark Waldrop (USGS), Ben Jones (UAF), and Rebecca Neumann (U. Wash)  @BeccaNeum



Introduction

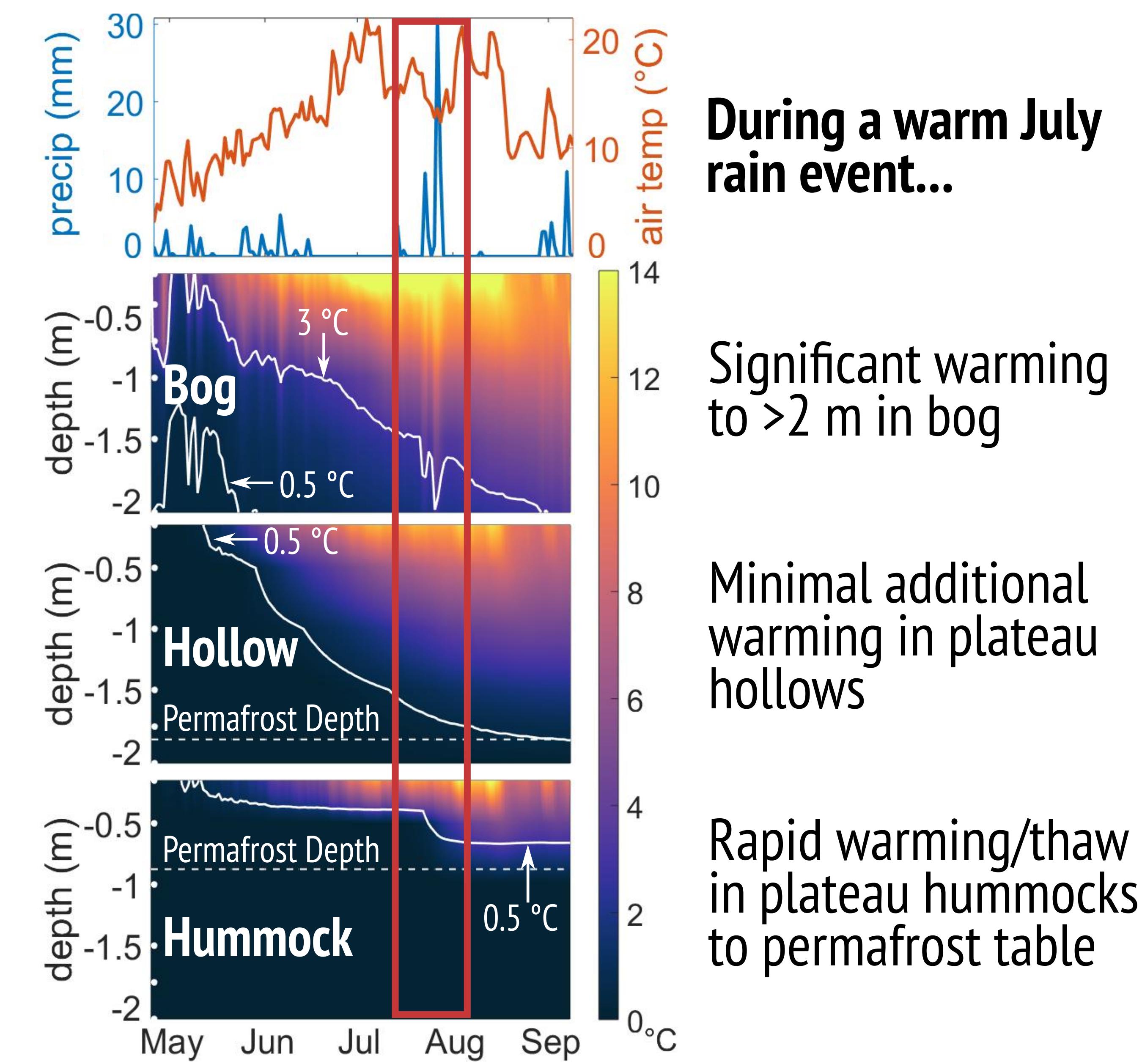
Northern high latitudes are expected to get warmer and wetter in the future. To better understand how permafrost landscape thermal regimes will change, we instrumented a discontinuous permafrost site currently experiencing these climate conditions.



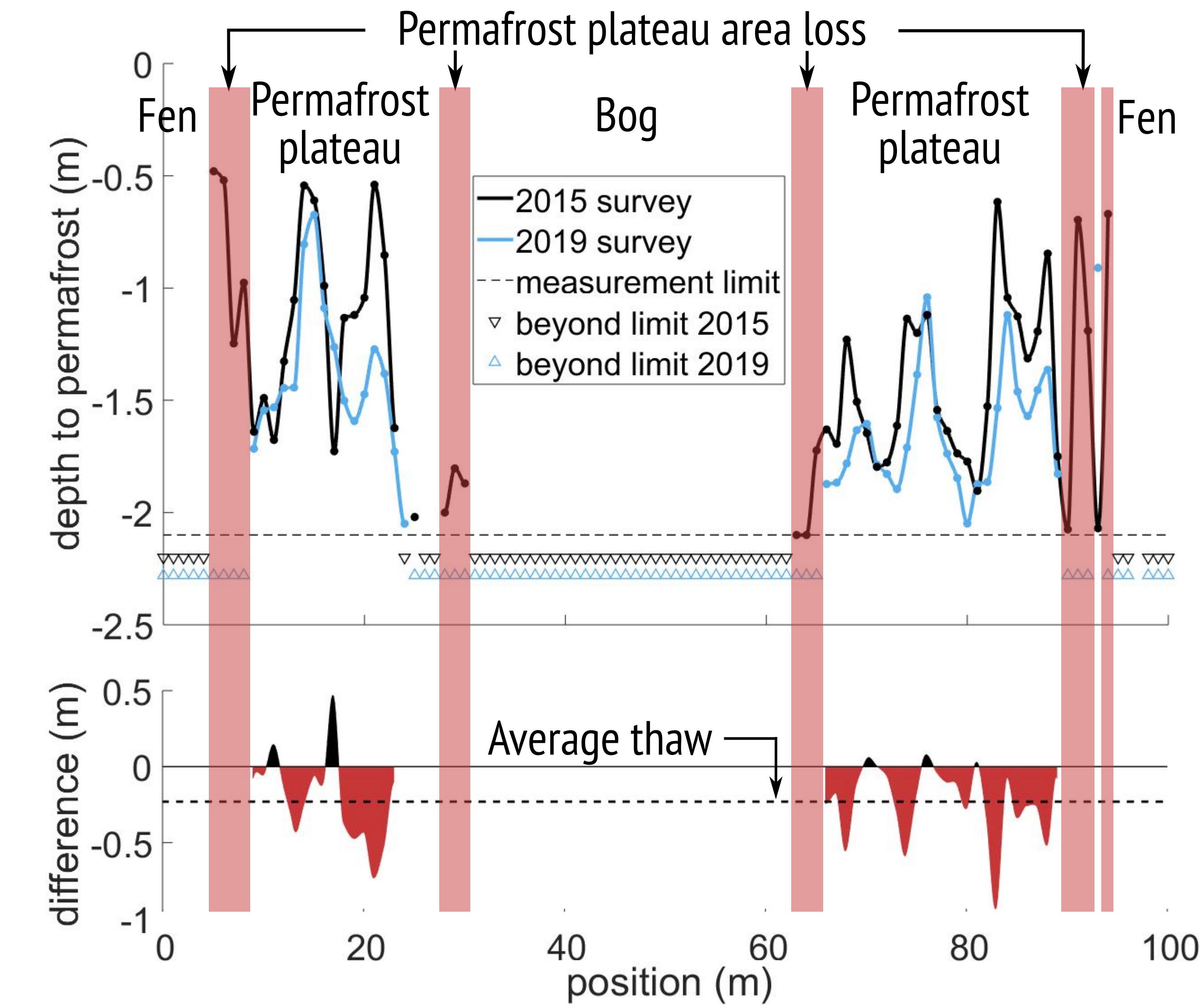
Motivation

Spring/summer rain events rapidly warm boreal wetland soils to deep depths by advecting thermal energy (Neumann et al. 2019, Geophys. Res. 46:1393). We hypothesized that this mechanism also warms seasonally frozen boreal plateau soils and accelerates permafrost thaw.

Advective Heat Transfer by Rain



Permafrost Change 2015-2019



Between Sept. 2015 and Sept. 2019...

26% reduction of measurable permafrost plateau extent (~14 lateral meters)
0.23 meter increase in average depth to permafrost (~0.06 meters per year)