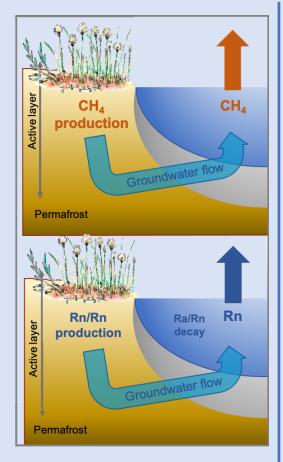
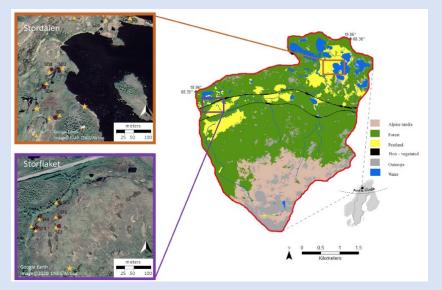
THE ROLE OF METHANE TRANSPORT FROM THE ACTIVE LAYER IN SUSTAINING METHANE EMISSIONS FROM SUBARCTIC THAW PONDS



- Thaw (thermokarst) lakes and ponds are hotspots for CH4 emissions (Holgerson & Raymond 2016, *Nature*)
- Knowledge gap: is groundwater discharge through the active layer an important driver for ponds CH₄ emissions?

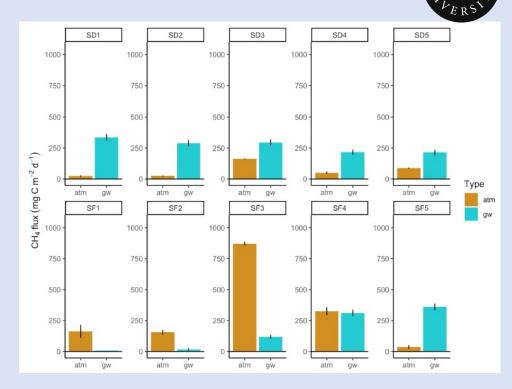
Stordalen catchment Abisko, northern Sweden











- Groundwater inflows from the active layer were estimated using radon (222Rn) as groundwater tracer (Rodellas et al. 2018, STOTEN)
- Groundwater discharge rates from the active layer were not trivial (6-46% of pond volume per day).
- The groundwater-mediated CH₄ inputs (gw) can sustain the diffusive CH₄ emissions (atm) from most of the ponds.
- Greater trophic reliance on methane oxidizing bacteria (MOB) in ponds with higher groundwater inputs from the active layer.

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