



Peatland Pools: Biogeochemistry (and Hydrology) at the Water-Soil-Vegetation Interface

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Peatlands are ecosystems that accumulate carbon (C) over long periods of time. The anoxic conditions created by prevailing water saturation, coupled with vegetation litter slow to decompose, reduces organic matter decay and allows net C accumulation. Open-water pools that cover many boreal and maritime peatlands are, however, net C sources to the atmosphere. Like lakes but contrary to the surrounding peat, pools are oxygenated environments and enhance the decomposition of organic matter. They are functionally different than peat but also than lakes, because of the organic nature of the matrix in which they are embedded. Using data from an undisturbed ombrotrophic bog of southern Canada, we show that pools are biogeochemical hotspots governed by internal processes and that they influence peatland structure. We also show that pools, while being net C sources to the atmosphere, may be key to sustaining the C accumulation function of peatlands by acting as hydrological buffers for the surrounding peat.