



## **Sulphur constraints on the carbon cycle**

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This study considered the stoichiometry and energy content of organic matter reservoirs and fluxes through and from a peatland. The stoichiometry and energy content were used to constrain the carbon budget of the peatland and the stoichiometric constraints showed that the transition to deep peat was limited by the availability of electron acceptors. The stoichiometry suggests there is insufficient energy available in the organic matter to produce CH<sub>4</sub>. The alternative pathways need either to use sulphate as a terminal electron acceptor or to use the DOM present in the peat pore water as the energy source. To test these explanations this study considered the sulphur budget of this peatland and the composition of the DOM in the peat profile pore water.

Samples of each organic matter reservoir and flux were collected and analysed for their elemental content including S. The samples analysed were: aboveground, belowground, heather, mosses and sedges, litter layer, a peat core, and monthly samples of stream particulate and dissolved organic matter. The dissolved organic matter included samples from the streamwater and two depths within the peat profile. The composition of the organic matter was viewed in the context of ongoing measurement of inorganic S within the catchment which included precipitation, pore waters and stream water.