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How much does fluvial dissolved organic carbon export from blanket bogs vary at the regional scale? An example from the Pennine region of Yorkshire, UK

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Often only one or a very small number of stream sampling points are used to infer wider regional export of fluvial carbon from peatlands. However, we suggest that the amount of fluvial carbon being exported varies enormously within regions even when blanket peat is the dominant land cover type. Here we present results from an extensive and comprehensive monitoring project covering blanket peat dominated catchments across the Pennine region of the UK using data from 2006 onwards. Up to the start of January 2014 the dataset contained dissolved organic carbon (DOC) data for approximately 11500 stream water samples (both routine spot samples and storm event samples). The majority of these DOC measurements also have associated UV-Vis absorbance data allowing an insight into the composition of the DOC present, specifically the dominance of humic versus fulvic acids and the degree of aromaticity (SUVA254). Additional data to support interpretation of the regional variability of DOC includes particulate organic carbon, discharge, pH, conductivity and turbidity, water table depth, soil water chemistry and meteorological data.
We provide an unparalleled insight into the spatial and temporal variability of DOC in a region of blanket bogs showing how catchment attributes influence fluvial DOC, how there are hotspots of DOC production and how high flow events regulating DOC export and its composition.