



Improving DOC flux estimates in peatlands through continuous UV-visible absorbance measurement

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Many bogs have a flashy streamflow regime with low baseflows and rapid and high storm peaks. Water derived from peatlands often contains significant amounts of organic humic and fulvic materials which form the largest fraction of the dissolved organic carbon (DOC) flux. However, most estimates of DOC flux from peatlands are based on sampling that is infrequent and which may miss the periods of high flux during storm events. In order to better characterise the behaviour and fluxes of fluvial carbon it is necessary to operate more frequent sampling. We present data from a continuously operating field based spectrophotometer simultaneously measuring absorbance across 200 to 730 nm at 2.5 nm intervals in runoff from an upland peatland. It is shown that absorbance at different wavelengths that have previously been used to characterise DOC varies rapidly during storm events. The probe even detects changes in absorbance characteristics in response to rainfall events before the stream discharge starts to rise. The high resolution behaviour of absorbance characteristics during storm events is different depending on the wavelength studied. Thus the choice of wavelength used as a proxy for DOC needs careful attention and it may be that automated spectrophotometric methods which provide rich time series data from across the spectrum can tell us more about fluxes, processes and sources of aquatic carbon in peatland systems in the future.