

Interactive
Comment

Interactive comment on “The significance of organic carbon and nutrient export from peatland-dominated landscapes subject to disturbance” by S. Waldron et al.

Anonymous Referee #3

Received and published: 30 April 2008

This is a useful paper and particularly timely and relevant in the UK context. There is considerable pressure on upland areas, especially those currently under plantation conifer forest, for development of wind farms. These areas typically have carbon-rich soils and I am not aware of any studies that have directly addressed the effects of this land use transition on carbon fluxes in drainage waters.

General comments

The paper is generally well written but could be more concise in places. For example, the description of the Whitelee site contains a lot of detail and I wonder whether some of this information, along with details of the other sites could be summarised in a table?

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Initially, I found the descriptions of the Glendye catchments and their relationship to the study a bit confusing.

In places within the discussion it is quite difficult to distil the main message from the detail. Furthermore, the delta 13C data are introduced here rather than in the results section.

The conclusions need to be more punchy. Again distil out the main take home messages and present these.

Specific comments

p1146, line 18. Conversion factor for LOI to C. Please reference or justify your choice of conversion factor. There is some debate in the soils literature concerning the value to be used.

p1149, line 18 ff. Can you give a reference for your choice of trophic divisions?

It is perhaps surprising to see little nitrate response to forest harvesting / disturbance as this has been commonly reported for UK felling studies on organo-mineral soils. The response is generally less extreme for gleyed soils and there have been few studies on peat soils. The explanation for a lack of nitrate increase is rather left hanging on p 1156, lines 10 and 11.

The discussion of the impact of the current disturbance on peatland carbon balance needs to be set in the context of the historical effects of the forest development on the long-term carbon balance at the site. The conversion of some of the peatland to forestry has already influenced the C balance at this site. Work by Milne, Cannell and Harrison specifically address this issue for afforested peatlands.

Technical corrections

p1150, line 19. Typo? "TP and TDN" should be "DOC and TDN"?

Interactive comment on Biogeosciences Discuss., 5, 1139, 2008.

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