Geophysical Research Abstracts, Vol. 7, 04273, 2005
SRef-ID: 1607-7962/gra/EGU05-A-04273

Dissolved Organic Carbon export from artificial drains and natural streams in upland peats

H. Gibson (1), F. Worrall (1), T. Burt (2)

(1) Department of Earth Sciences, University of Durham, South Road, Durham DH1 3LE, UK (h.s.gibson@durham.ac.uk), (2) Department of Geography, University of Durham, South Road, Durham, DH1 3LE, UK

Numerous studies show a long term increasing trend in water colour levels in many UK rivers, caused by increased levels of DOC in the runoff from upland peat catchments. Increased DOC concentration in rivers affects the viability of water treatment works and also raises questions about the changes in the net carbon budget of upland peats.

Large areas of upland peat where the headwaters of the affected rivers are found are artificially drained. This process involves the creation of a large number of artificial ditches and streams, substantially altering the hydrological behaviour of the peatland and, it is suggested, potentially increasing DOC output. The study aims to assess this effect of moorland drainage in the context of overall water colour levels across a river catchment. We also seek to show whether any such effect can be reversed by subsequent blocking of the artificial drains and an (attempted) return to natural drainage conditions. We present results from monitoring of several individual stream catchments including unblocked drains, blocked drains, and a pristine natural stream. The results suggest that creation of artificial drainage is likely to cause increased DOC export, but that blocking of artificial drains will lead at best only to a temporary decrease in export. In either case the results are not conclusively different from the pristine catchment, suggesting that drain blocking is not a promising strategy for long term DOC export reduction.