



Does the fluvial flux of carbon solve the problem of the missing teragrammes?

F. Worrall(1)

(1) Dept of Earth Sciences, University of Durham, UK.

Recent studies of the European carbon budget have highlighted a systematic gap between budget estimates based upon fluxes and inventories. This gap suggests an additional leakage of the order of $11 \text{ gC/m}^2/\text{yr}$ and it has been proposed that this is due to the fluvial flux of carbon from the terrestrial biosphere. This study aims to provide and estimate of the fluvial carbon flux of England and Wales in order to test whether fluvial carbon can fill this gap. The study includes the following forms of carbon: dissolved organic carbon; particulate organic carbon; and the excess dissolved CO_2 . For the calculation of the of the DOC and POC budget the data from the harmonised monitoring network was utilised. In order to calculate the dissolved CO_2 the contribution from groundwater was calculated from extensive groundwater records and the proportion of groundwater contributing to English rivers. The in-stream source of CO_2 was estimated from the BOD records from the harmonised monitoring network. The results show that the contribution is $12 \text{ gC/m}^2/\text{yr}$ where the major source of error is the estimation of the carbon content of POC.