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The carbon balance of an Atlantic blanket bog in South-western Ireland – 6 years of observations and modelling

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This study aims to calculate the carbon balance of an Atlantic blanket bog in South-western Ireland between 2003 and 2008. Included in the carbon balance are the three main carbon components for peatlands: the two gaseous atmospheric carbon exchange components carbon dioxide (CO2) and methane (CH4) and the riverine loss of carbon as dissolved organic carbon (DOC). Measurements of CO2 were made since 2003 using an eddy covariance system. Methane flux was measured from 2003 to 2005 and in 2008 using a closed chamber system; the missing CH4 data were modelled using a relationship with soil temperature and water table. The DOC flux was calculated from concentrations of DOC and stream discharge data. The DOC concentrations were continuously measured in 2007 and 2008 by a spectroanalyser immersed in a stream draining the peat catchment. Prior to 2007 the DOC flux was modelled using a relationship of DOC concentration to air temperature. The final goal of this project is to apply different climate change scenarios to the carbon balance of our peatland site.