Geophysical Research Abstracts
Vol. 15, EGU2013-1428, 2013
EGU General Assembly 2013

Understanding multiple element budgets of peatlands – a role for simple stoichiometry?

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A few studies have considered the carbon budget of peatlands; fewer studies have considered the N budget of peat soils and none have considered both together. Furthermore, we could include the oxygen and the energy budgets. This study considered the total N budget of an upland peat-covered catchment over the period 1993 to 2009 at the same time as the C budget was being measured and to this we were able to add information on the O and energy budgets. The study has shown:
1. Tracing the C/N ratio of biosphere reservoirs shows that primary productivity and litter decomposition represent outputs of N from the soil while DOC production and humification represent inputs of N.
2. Over the 13 year study period, the total carbon balance varied between a net sink of 20 to - 91 tonnes C / km2 / yr
3. Overall, the total N budget of the peat ecosystem varies from -1.0 to +2.5 tonnes N/km2/yr, i.e.$\in some year stheecosystemisanetsourceof N.$
$Thetimeseriesofthetotal Nbudgetsuggeststhatthe Nbudgetisrespondingtooccurrenceofsevered roughtswithalong-termdeclinein Nstorage.Thiscouldbeinterpretedastheecosystemrespondingtolong-termhigh Ndepositionrates, evenifthoserateshavenowdiminished.Thecarbonbudgetshowsnosuchtrends, althoughthekn$