



Controls upon Net Ecosystem Respiration from UK peatlands

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This study aims to assess controls upon net ecosystem respiration (NER) from managed peatlands. The Durham research group has been measuring the carbon budgets of many sites from across the UK for several years and as part of this the study has measured NER but measured it in a context of all other carbon fluxes and hydroclimatic drivers. Therefore, this study has considered all sites where NER was measured on at least 6 collars, monthly for at least one year and then compared these measurements to: soil/air temperature; photosynthetically active radiation (PAR); depth to water table; gross primary productivity (GPP).

The study could consider 13 sites and over 3000 datapoints and showed that:

- i) The study has shown that it is possible to separate out contributions from soil and root respiration.
- ii) The study found significantly improved models compared to standard approaches to modelling NER
- iii) The modelling found significant roles for: GPP, air temperature and season, but that depth to the water table was rarely important.
- iv) Sensitivity to water table appears to be controlled by average water table depth at a site.
- v) The study was able to measure a revised Q10 values for all sites having factored out root respiration and seasonality, giving values between 1.17 and 1.39.

The approach shows remarkable consistency between sites and vegetation types and represents a way of creating general models of NER.