



## **Peatlands and the C cycle during the last millennium**

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The last millennium (850-1850 AD) has seen significant changes in climate and in atmospheric concentrations of greenhouse gases. This relatively recent time period can be used to assess the peatland contribution to the global carbon cycle, as; 1) the peat accumulation record can be readily assembled from a representative range of peatlands worldwide; 2) climate and greenhouse variability over this time period is reasonably well-known for many regions and; 3) the spatial variability in modern climate space can be used to assess the relationship between peat accumulation and climate variables.

Here we present the results of a global compilation of peat accumulation rates over the last 1000 years based on existing published and unpublished data and acquisition of new data in critical regions, especially in the tropics.

The new global dataset comprises:

- a) a set of high temporal resolution sites for which variations of the rate of carbon accumulation during the last millennium in relation to past climate fluctuations can be analysed (e.g. the Medieval Climate Anomaly (MCA) to Little Ice Age (LIA) transition in northern high latitudes).
- b) a set of low temporal resolution sites for which an overall carbon accumulation rate for the whole of the millennium period is calculated. This low-resolution but more sizeable dataset allows for the analysis of potential regional differences and overall contribution of peatlands to the C cycle in the last thousand years. Furthermore, we use the natural range of climate variation across sites to explore the relationship between total carbon accumulation over the last millennium and bioclimatic variables characteristic of each site.

We conclude by discussing the implications of the relationships between past climate and peat accumulation for the global carbon cycle.