



Improved understanding of Holocene climate change from stable-isotopic analysis of *Sphagnum* alpha-cellulose in raised peat bogs

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The stable isotopic composition of *Sphagnum* alpha-cellulose in raised peat bogs is directly related to the isotopic composition of the precipitation from which it is derived. The isotopic composition of precipitation in any given place over decadal timescales is related to regional climate and the prevailing atmospheric circulation regimes. Mass-spectrometric analyses of sub-fossil *Sphagnum* remains preserved in raised peat bogs provide a quantitative estimate of variations in the source water used for cellulose synthesis. Here we review the contribution from stable isotopic data in the improved, quantitative understanding of Holocene climate change from raised peat bogs alongside established multi-proxy palaeoclimate investigations using data from sites in north-western Europe. The data reveal evidence for coherent climate changes across the region both in duration and magnitude which yield new insight into the potential mechanisms for late Holocene climate variations.