



Hydrological instability of a Baltic raised bog during the last 1000 years in northern Poland

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Our aim was to reconstruct the palaeohydrological of a Baltic raised bog located in northern Poland over the last 1000 years. We used several proxies: testate amoebae, plant macrofossils, pollen and carbon stable isotopes to reconstruct the bog surface wetness. We analysed two replicated monoliths collected from the same bog at high temporal resolution. We obtained a reliable chronology for both monoliths based on radiocarbon and lead 210 dating. We compared the inferred water table depth changes obtained from the quantitative reconstruction based on the testate amoebae transfer function with inference from plant remains and carbon isotopic composition of Sphagnum stems for both monoliths. Our data provide new insight on human impact on the hydrology of Baltic raised bogs and the sensitivity of these peatlands to various disturbances. We show an increasing hydrological instability of the studied peatland concomitant with the gradually increasing human impact over the landscape since the Medieval Period. However, climatic change also played an important role during the Little Ice Age period that overlapped with the anthropogenic disturbance. This palaeoenvironmental data provides useful baseline data for peatland management and restoration in Northern Poland and more generally illustrate the value of high-resolution multiproxy studies as tool for both palaeoenvironmental studies and current management.