**Holocene dust record in a belgian peat bog: multiproxy geochemical approach**

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**Abstract**

Ombrotrophic peatlands are unique environmental archives of natural and anthropogenic atmospheric dust deposition. Their surface layers are exclusively fed by atmospheric inputs.  A peat bog core from Misten in Eastern Belgium southern covering the last 7500 years (dated by 210Pb and 14C methods) was investigated to reconstruct dust depostion based on a combination of the Rare Earth Elements (REE) and lithogenic elements concentrations, as well as Nd and Pb isotopes data. Nd isotope signature was used to decipher between local and distal dust supplies, the Pb isotopes to trace the antropogenic influences. Peat humiﬁcation was used to evaluate hydroclimatic conditions. Dust ﬂuxes show pronounced increase at 3200-2800BC, 600BC, AD600, 1000AD, 1200AD and from 1700 AD. Lead isotope signatures are consistent with local and regional contamination by coal combustion and smelting activities. The εNd values show large variability, between -5 and –13, identifying three major sources of dust: local soils, distal volcanic and desert particles. Our results are in agreement with atmospheric reconstructions from other continental archives, confirming that the Misten peat is a valid archive for dust deposition. The approach combining geochemical elementary content and isotope data in ombrotrophic peat allows to decipher between dust flux changes related to human and climate forcing.