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sSoil organic matter composition from of peat soils depending on land use

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The soil organic matter (SOM) of peat often dominates soil properties because of the low mineral contents. The objective was to analyze SOM content and composition of peat soils as affected by (i) peat type and degradation status, (ii) water regime, and (iii) land use. Several peats in Canada and Germany were compared. The samples were analyzed with Fourier Transform infrared (FTIR) spectroscopy.
FTIR indicated higher carboxyl (C=O) and alkyl (CH) group contents for the Canadian peats as compared to the German ones. The Canadian peat was an ombrotrophic bog while the German peats were fens. The role of the peat geneses for OM composition could be confirmed because the FTIR of the Canadian ombrotrophic bog was similar to that of another ombothrophic bog located in Lower Saxony, Germany. The SOM of the intensively drained fen of an arable site had a relatively higher C=O content as that of a less-drained grassland site. For fens with similar water regime, the OM composition was similar, except for effects of spatial heterogeneity. Such differences could be explained by differences in land use in the close surrounding near the sampling sites. Smaller FTIR absorption bands for C=O groups were found for samples located close to arable land as compared to samples from locations close to a forest (i.e. possibly shade or litter effects). These neighbourhood differences in SOM composition were similarly large as those those observed for different land use (i.e. arable sites or forests). The results indicate that SOM in peat soils is not only influenced by climate, land use or drainage but is also affected by the type of land use at sites in the close neighbourhood