



Compiling a data base of groundwater levels in German organic soils

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Although covering only around 5 % of the country, drained peatlands are the largest single source of greenhouse gas (GHG) emissions besides the energy sector in Germany. GHG emissions from peatlands are very sensitive to changes in the groundwater level, which poses an enormous challenge when upscaling hydrological and gas exchange models to the national scale. However, to compile an improved inventory of GHG emissions from organic soils and to assess the effects of re-wetting measures, upscaling methods for the groundwater level need to be developed. Moreover, to develop robust vegetation indicators for GHG emissions, groundwater level parameters of relevant vegetation types need to be known.

Here, we present a unique dataset on groundwater levels in organic soils. Groundwater level data from research and re-wetting projects was collected, checked and harmonised. Presently, our data base contains time series from more than 60 peatlands and 1100 dipwells, resulting in around 8000 annual data sets. Per area, 3 to 91 dipwells have been installed, while the lengths of the time series span from one to 21 years, facilitating the analysis of temporal trends. As groundwater data is generally mainly collected within the frame of re-wetting projects, the majority of the data is from such areas. Thus, the main land use categories for peatlands in Germany, grassland and arable land, are still underrepresented in the data set. At the moment, for all dipwells, land use as taken from official land use statistics (ATKIS), soil type according to the geological map GUEK200 (1:200.000), climatic parameters and the protection status (e.g. nature reserves and NATURA2000) are known. If available, the data base contains more precise site information on vegetation, restoration methods and soils. This dataset will be used for both the regionalisation of the groundwater table and an improvement of vegetation-based proxies for GHG emissions.