



What rules GHG-(greenhouse gas)-fluxes in a prealpine bog - management or watertable?

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Being an important sink of carbon, the small stripe of bogs in the foreland of the Alps plays an important role for the carbon balance of Germany. A big part was drained for peat-use and to get agricultural land in the last centuries. Restoration of these degraded bogs can help to rebuild this function, whereas the watertable is an important co-factor for the amount of mitigation of greenhouse gases (CO₂, CH₄ and N₂O).

To estimate GHG-balances gas-flux measurements, using the chamber method developed by Drösler (2005) were done in 2007 and 2008 on a degraded bog-meadow, which was partly rewetted in 1993 and which is still managed in large areas. This mosaic of restored, drained and managed areas showed big differences in their carbon-balances from a high source ($\sim 500 \text{ g CO}_2\text{-C m}^{-2} \text{ a}^{-1}$) to a moderate sink ($\sim -200 \text{ g CO}_2\text{-C m}^{-2} \text{ a}^{-1}$).

Where the management was stopped in 1993, some Sphagnum-communities developed which helped to turn these areas from moderate sources ($47 \text{ g CO}_2\text{-C m}^{-2} \text{ a}^{-1}$) or sinks ($-58 \text{ g CO}_2\text{-C m}^{-2} \text{ a}^{-1}$) to permanent sinks with uptakes between (-150 and $-250 \text{ g CO}_2\text{-C m}^{-2} \text{ a}^{-1}$).

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