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Peatland-GHG emissions in Europe

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Managed peatlands are hot spots for CO_2, CH4 and N2O emissions. GHG which have been not fully integrated in past European climate projects. Peatlands contribute to European GHG emissions 10 times more per unit area than other terrestrial ecosystems. Peatland management and exploration by drainage, agricultural use and peat extraction turned pristine peatland GHG sinks into sources. Emissions can reach more than 40 t CO_2equiv. ha-1 a-1 in intensively managed peatlands. On the other hand, the restoration of degraded peatlands does normally reduce these emissions significantly towards climate neutral levels, once the restoration work is done wisely.
But in some cases the net climate effect do not decrease significantly depending on hydrological regimes, fertilization status of the peatlands, climate and vegetation type. In many European countries with significant peatland cover nationally funded projects were set up to investigate peatland GHG fluxes and their drivers.
These scattered data and knowledge are currently being brought together under the coverage of the GHG-Europe project (Grant agreement no.: 244122) within a new synthesis to develop the relevant EF, identify the drivers and develop upscaling options for GHG-emissions.
The talk will:
(1) show a first cut of new Emission Factors for peatlands in Europe and compare these with IPCC-default values.
(2) discuss the developed sensible response functions for GHG-fluxes against natural and anthropogenic drivers such as land use intensity, land management with drainage and climate variability.
(3) show case studies from Germany show the applicability of response functions for upscaling of GHG-balances.
(4) An outlook is given to the future European peatland GHG-Balance.