

NIL | Université de Lausanne Faculté des géosciences et de l'environnement bâtiment Amphipôle CH-1015 Lausanne





Master's thesis topic

Carbon cycling : seasonal variation of greenhouse gases fluxes and testate amoeba communities in peatlands

Context: Peatlands are major C sinks, but if damaged are C sources. Hydrological restoration aims at recreating habitats for threatened plant and animal species, restoring the C-sequestration capacity but tools are missing to assess the success. The development of robust predictive models to allow spatial mapping of CO_2 and CH_4 fluxes across peatlands is in progress in the laboratory. These models are based on the use of testate amoeba (TA) communities as proxies for greenhouse gases (GHG) fluxes.

The seasonal variation of GHG fluxes and TA communities is an essential missing information for the development of these models. Both GHG fluxes and TA communities were shown to vary seasonally. The magnitude of this variability may differ among microhabitats and between GHG fluxes and TA, but no comparative study has ever been done.

Goals: This work aims to document the seasonal variations of greenhouse fluxes and of testate amoeba occurring in different microhabitats in Swiss peatlands, and assess how these variations affect the performance of predictive models.

Required knowledge and expertise: This project involves field work in peatlands in the jura, microscopy work, and some modelling on R.

Collaborations: This work is done in collaboration with two PhD students

Keywords: testate amoebae, peatland, greenhouse gases, seasonal variation

Workplace: University of Neuchâtel, Lab. of soil biodiversity.

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