WP2.1 The role of microbial peat decomposition in land subsidence

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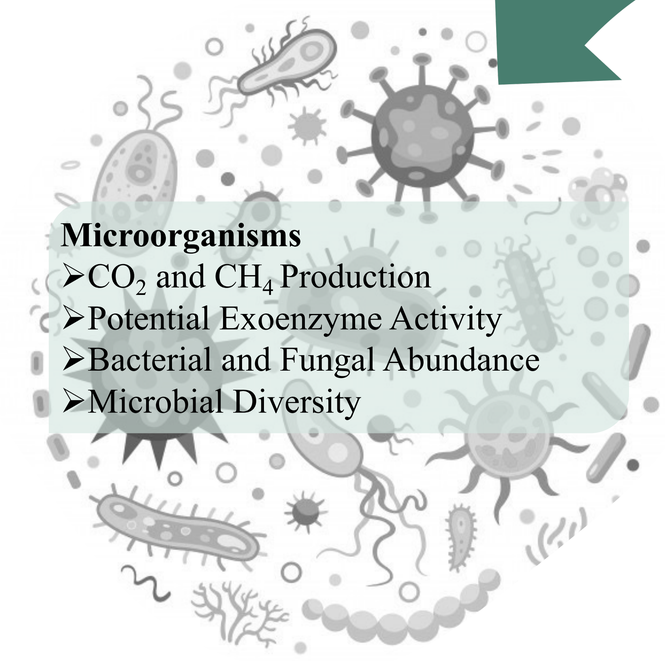
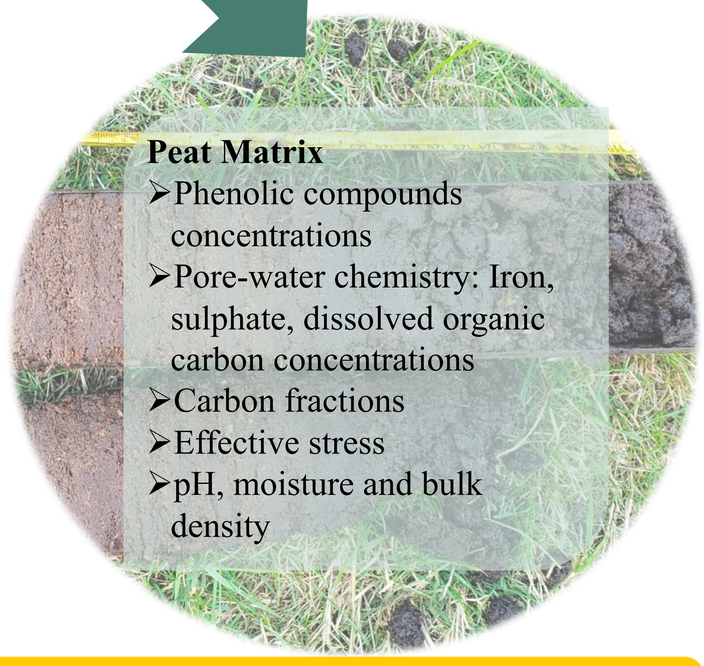
RESEARCH GOALS

- Determining the oxic and anoxic decomposition rates in botanically different peatlands
- Revealing the drivers of decomposition rates
  - ✓ Microbial community
  - ✓ Substrate
  - ✓ Pore-water chemistry
- Understanding the interaction of biological and physical land subsidence mechanisms

METHODOLOGY



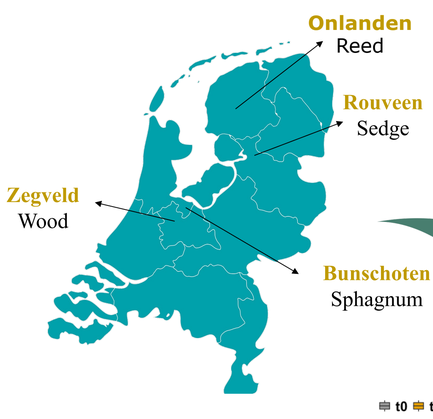
Microorganisms
- CO_2 and CH_4 Production
- Potential Exoenzyme Activity
- Bacterial and Fungal Abundance
- Microbial Diversity

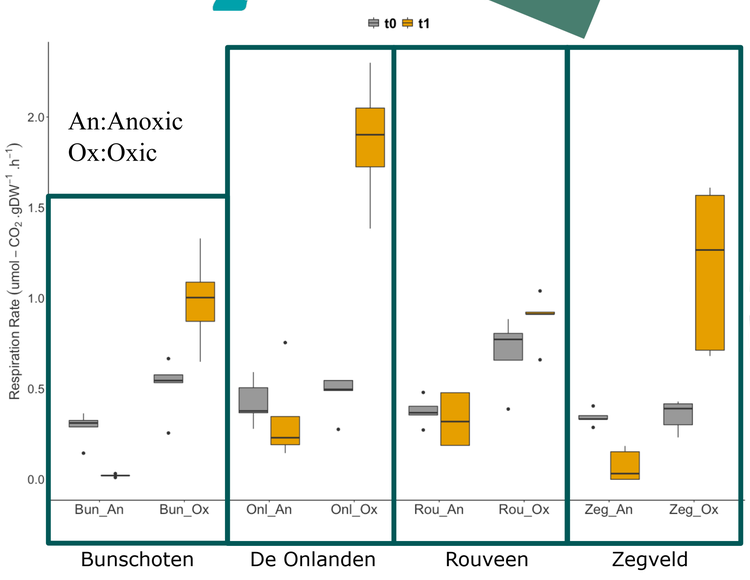


Peat Matrix
- Phenolic compounds concentrations
- Pore-water chemistry: Iron, sulphate, dissolved organic carbon concentrations
- Carbon fractions
- Effective stress
- pH, moisture and bulk density

RQ.1 What are the oxic and anoxic decomposition rates in botanically different peatlands in the Netherlands?

RQ.2 How does substrate legacy impact the microbial activity, diversity and abundance in Dutch peatlands when environmental conditions are changed?





t_0 :The initial oxic and anoxic measurements after the anoxic sampling at the field

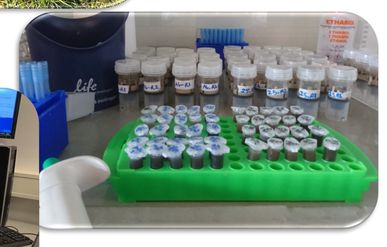
t_1:The measurements after three months laboratory incubation under oxic and anoxic conditions

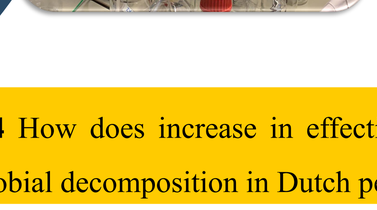
Decomposition rates in Dutch peatlands

Drivers: Substrate legacy

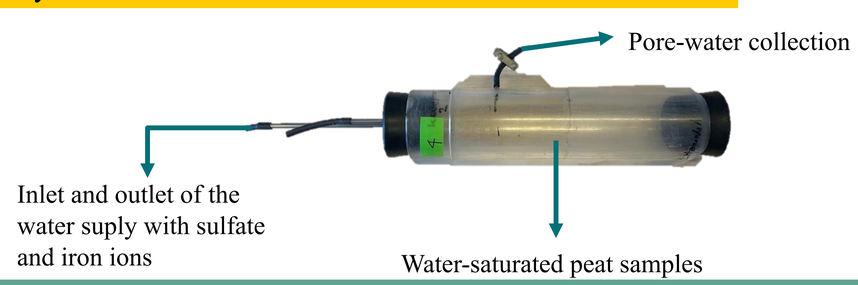
Drivers: Pore-water chemistry

Interaction: Microbial activity and effective stress

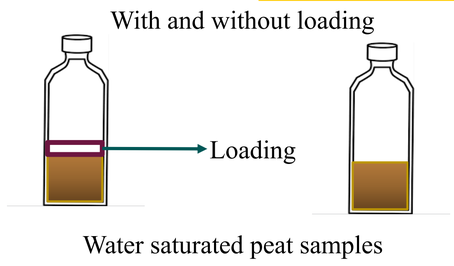


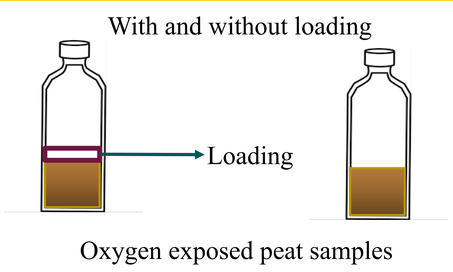


RQ.3 What is the effect of sulphur and iron presence on oxic and anoxic microbial activitiy?



RQ.4 How does increase in effective stress alter the rate of microbial decomposition in Dutch peatlands?





FOR YOU ☺

"The essence of the independent mind lies not in what it thinks, but in how it thinks." — Christopher Hitchens
Every opinion is valuable, please leave a comment

"The research presented in this paper is part of the project Living on soft soils: subsidence and society (grantnr.: NWA.1160.18.259). This project is funded by the Dutch Research Council (NWO-NWA-ORC), Utrecht University, Wageningen University, Delft University of Technology, Ministry of Infrastructure & Water Management, Ministry of the Interior & Kingdom Relations, Deltares, Wageningen Environmental Research, TNO-Geological Survey of The Netherlands, STOWA, Water Authority: Hoogheemraadschap de Stichtse Rijnlanden, Water Authority: Drents Overijsselse Delta, Province of Utrecht, Province of Zuid-Holland, Municipality of Gouda, Platform Soft Soil, Sweco, Tauw BV, NAM."

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