



BG3.8

Peatland management and restoration

Effects of different land management strategies on greenhouse gas emissions from pre-alpine fens under grassland use

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Concept of the research



Personal photo during a CH₄ measurement

Karolinenfeld

- Pre-alpine fen
- Grassland, intensiv 3 cuts per year, 3 manures per year

Per site:

- Three treatments with three replicates
 - Closed chamber measurements (weekly for CH₄ and N₂O, every 3 weeks for CO₂)
- Monitoring of water-table depth
 - Monitoring of environmental parameters



Personal photo during a CO₂ measurement

Benediktbeuern

- Pre-alpine fen
- Grassland, extensiv, 2 cuts per year, no fertilization

December 2019: Start
of gas-measurements

October 2020 rewetting
Karolinenfeld

Spring 2021: rewetting
Benediktbeuern

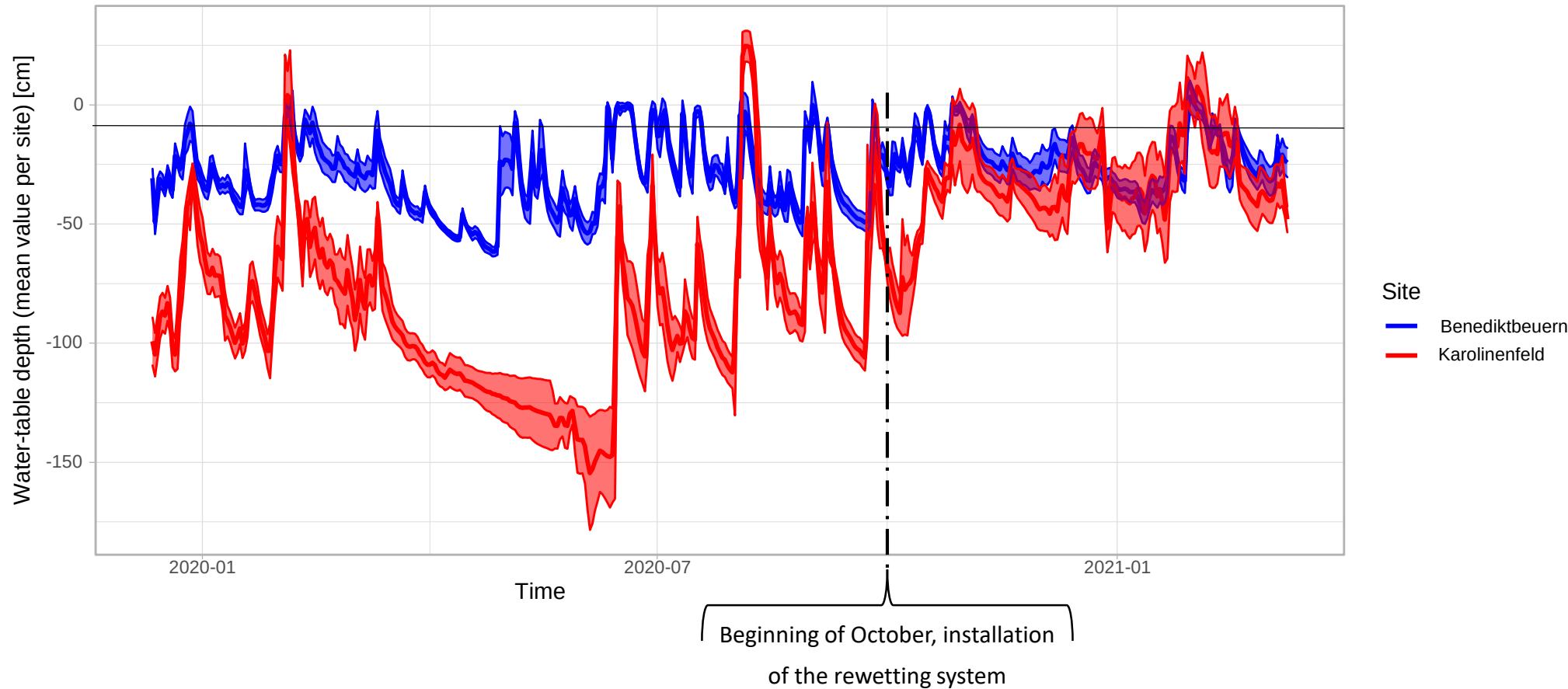
December 2021: End of
measurements

2020
1st measurement year

**rewetting and
continuation of
land-use**

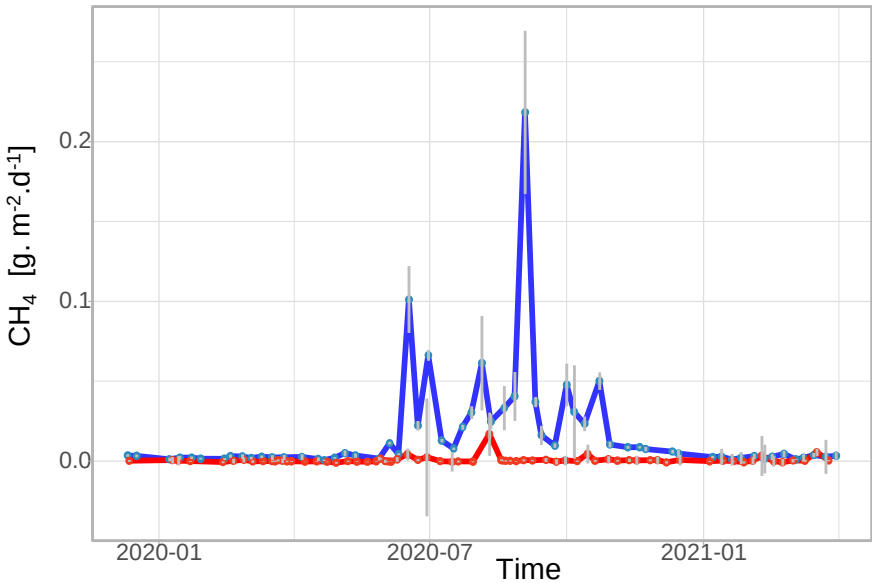
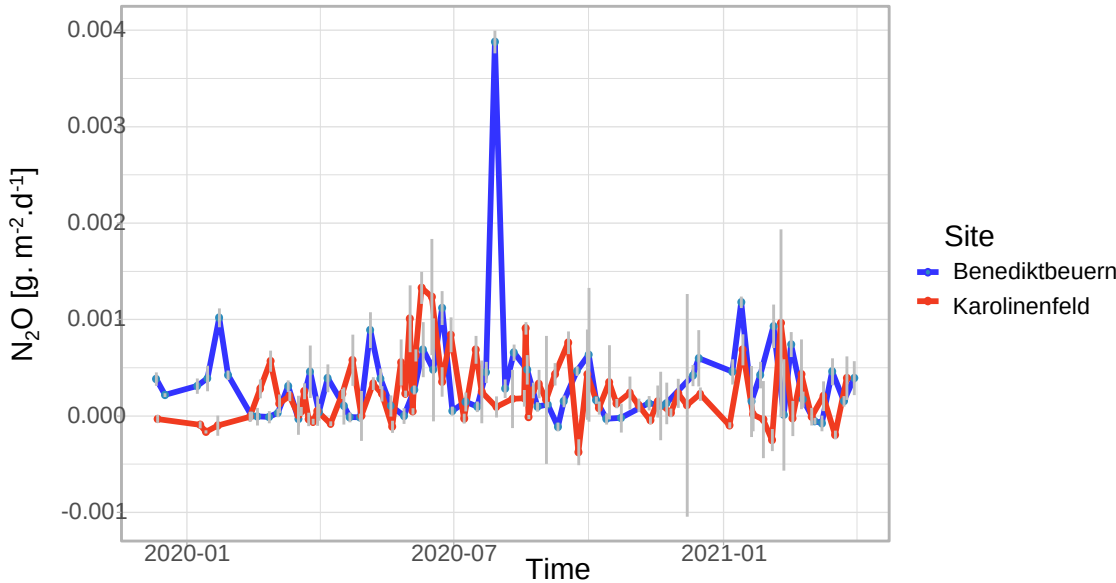
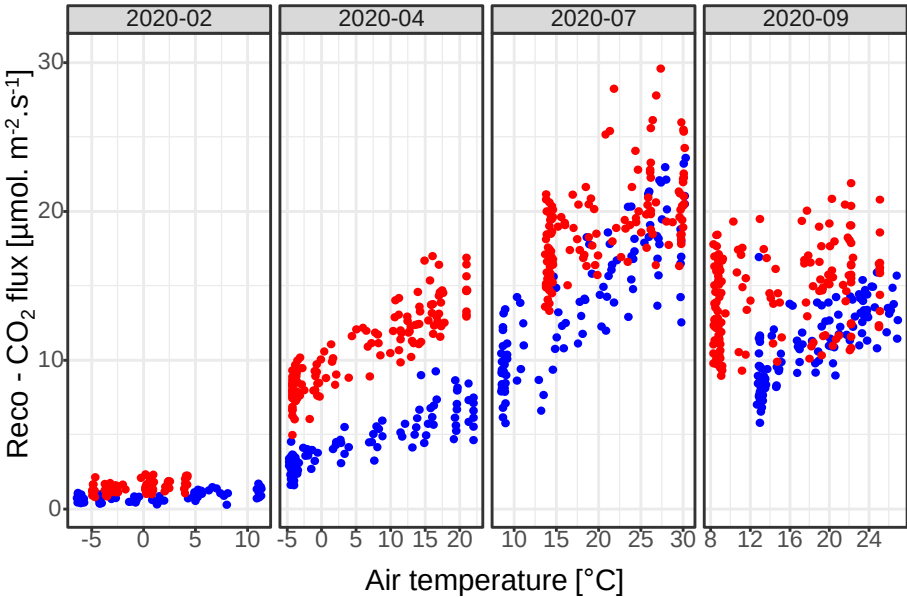
2021
2nd measurement year

• First results – Rise of water-table



Site	Benediktbeuern	Karolinenfeld
Mean value for Winter 2019/2020	-26.54 cm	-72.65 cm
Mean value for Winter 2020/2021	-24.51 cm	-40.71 cm

• **First results – Gas emissions**



Parameters	Comparison between sites
Water-table depth mean	Karolinenfeld > Benediktbeuern
CO_2 fluxes	Karolinenfeld > Benediktbeuern
CH_4 fluxes	Benediktbeuern > Karolinenfeld
N_2O fluxes	Both negligible fluxes
Biomass	Karolinenfeld 2x > Benediktbeuern

- Expectations for 2021**

Parameters	Benediktbeuern	Karolinenfeld
Land-use	Extensive	Intensive
Water-table		
CO₂ emissions		
CH₄ emissions	Same or more	
N₂O emissions	No changes	after manure application
Biomass production	Same production or less	Same production or less

→ More climate-friendly land-use in both cases

Contact me for more information

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