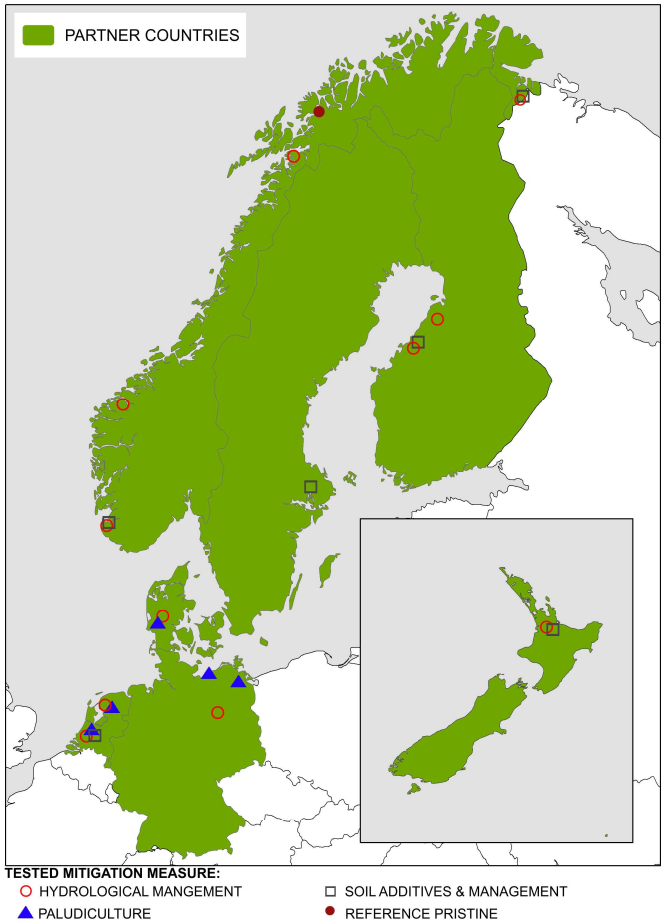
FACCE ERA-GAS

MONITORING & MITIGATION OF GREENHOUSE GASES FROM AGRI- AND SILVI-CULTURE

PEATWISE

Case study, Finland



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Radboud Universiteit Nijmegen

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Ruukki, Finland

Site type:
Grass and cereal crops on acid sulphate soils

Mitigation measure tested:
WTL control and agronomy/crop management

Ruukki , Finland

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Description, land use history: Shallow peat, agricultural area. issue with acid sulphate soils

Climate		Soil quality and agronomy		Hydrology and drainage	
Location	64°41.0019; 25°05.4343	**Peat depth**	0.2 – 0.7m	**Drainage started**	Block 6 (1900) Block 5 (1960) Block 1,2 (1980)
Mean annual precipitation (mm y^{-1})	522	**Underlying soil**	Sandy clay, Acid Sulphate soil	**Drain depth past (cm)**	80-120 (depending on soil surface)
Mean annual T (° C)	2,3	**Crops**	Grass ley or cereal (barley or oats)	**Drain depth present (cm)**	100
Mean length of growing season	5 months	**Rotation**	3-4 years (ley) + 2 years (cereal)	**Drain spacing (m)**	12
		Harvests	3		

Site location and information

Profile description:

0-20/30cm root depth, (H7-H10, von post)

20-30/70cm organic soil, ”reddish” iron oxide layer most prominent in blocks 1-4, containing large intact plant materials, highly decomposed (H7-H10, von post)

30/70cm-x mineral soil, sandy clay, ‘rust spots’, very dry (Oct 2018)

Agriculture and land use (photos)

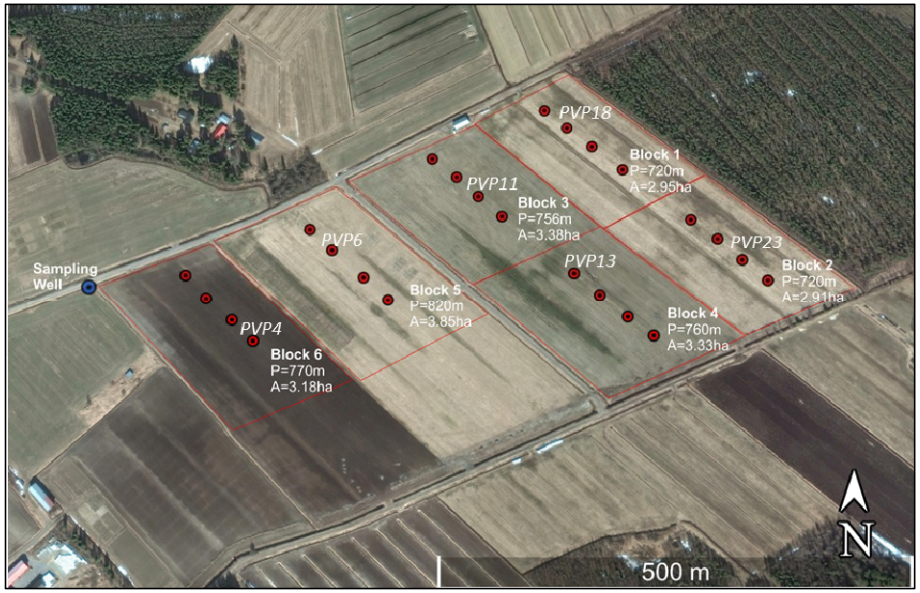
Land use information:
Grass ley or cereal
3 years grass, 1 year crop
Mean length of growing season: 5 months

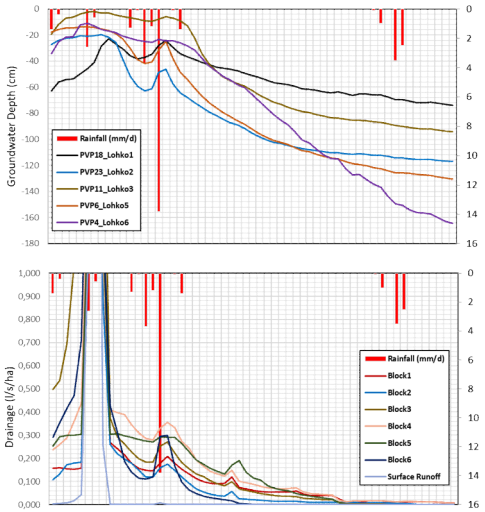
Experimental set-up

Objective: To study the field-scale water balance and observe effectiveness of drainage management on WTL control/manipulation to reduce GHG emissions whilst maintaining biomass production




Monitoring 2018-2022
Continuous: Groundwater table levels, drainage flows, soil moisture
Frequent: Stable water isotopes, hydraulic conductivity, GHG fluxes
Seasonal: soil-water retention, biomass yield,





Description:
- ✓ 6 separately drained blocks
- ✓ Varying crops (grass ley, oats or barley)
- ✓ Adjacent to FMI weather station
- ✓ Continuous drainage data (left)
- ✓ Continuous GWT logger data (left)