Modelling CO_2 emissions from drained peat meadows with PEATLAND-VU

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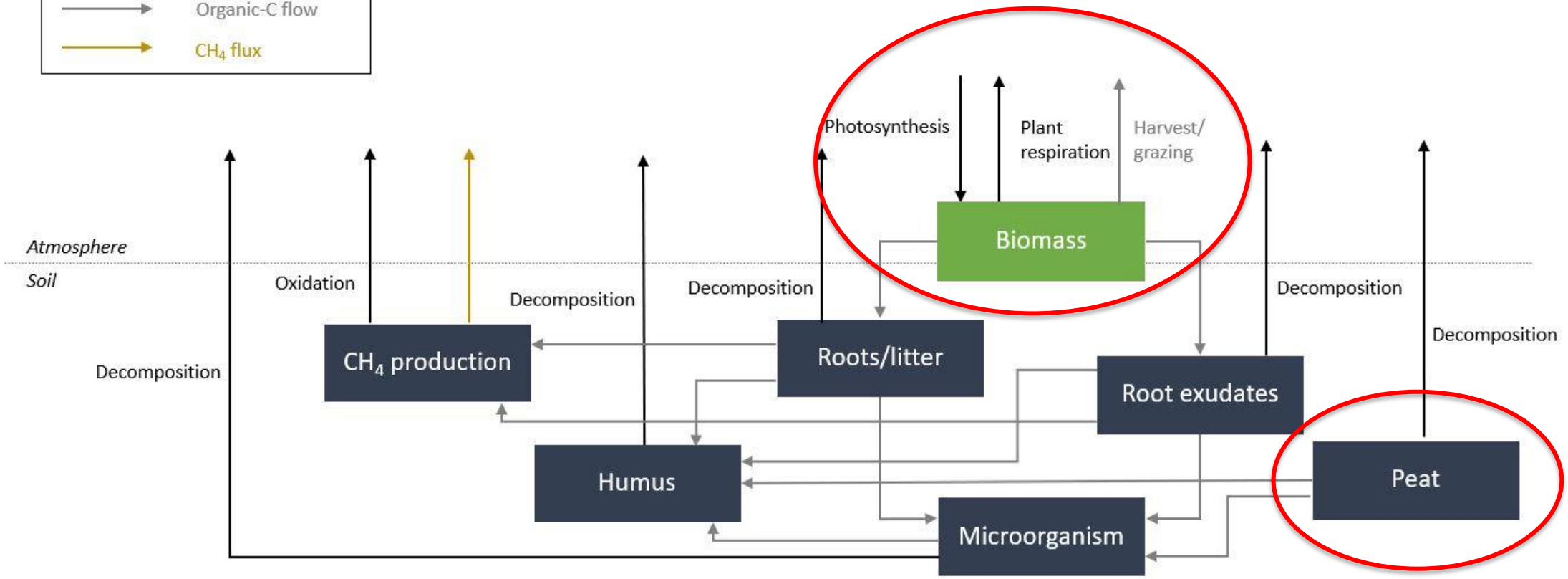
The model

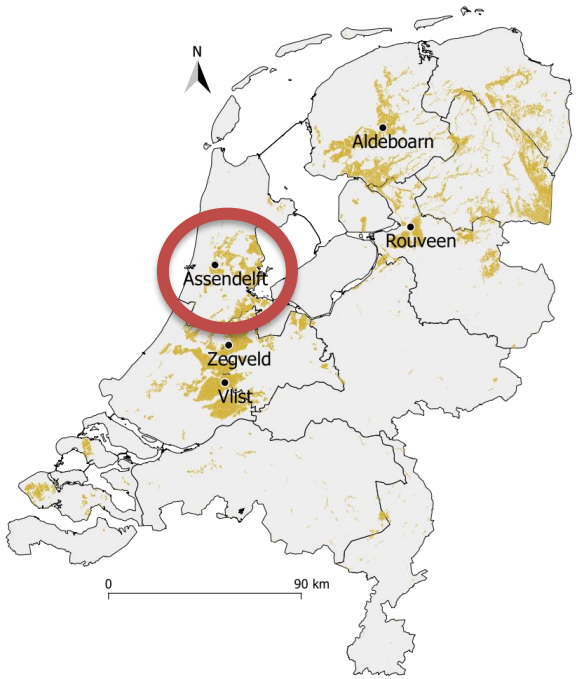
Input:
Temperature, radiation, evapotranspiration and precipitation.

Output:
Biomass, groundwater table
Per soil layer: Temperature, soil moisture, CO_2 production per carbon pool, CH_4 flux



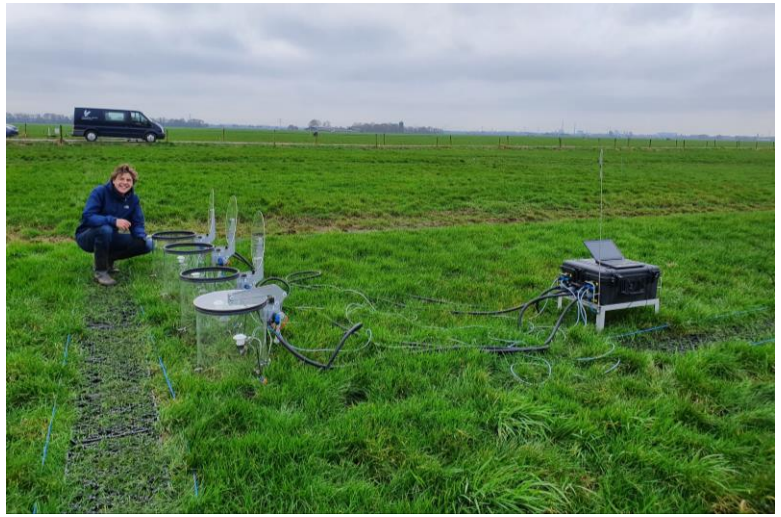
First test site

Drained peat pasture in West-Netherlands



Measurements since April 2020

- Continuous CO_2 flux measurements
- Soil properties
- Environmental variables
  - GWT
  - Temperature
  - Meteorological



Jim Boonman

First year of modelled data will be presented and compared with measured

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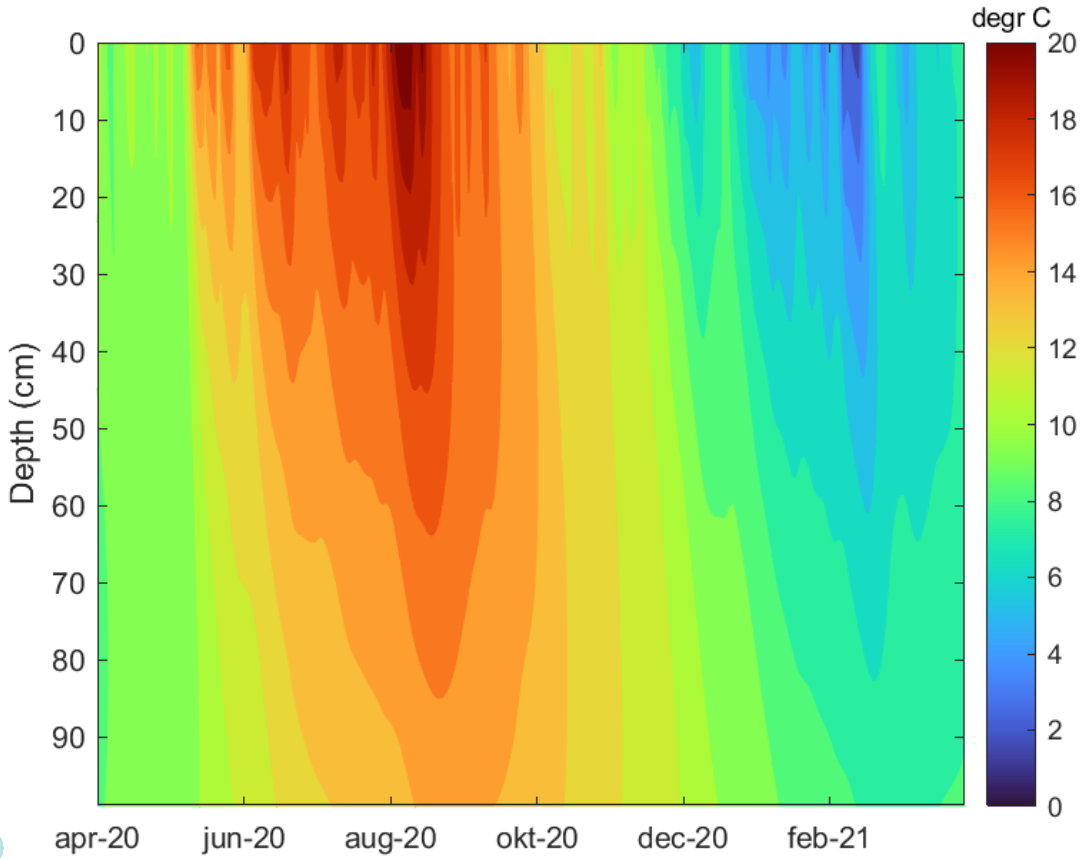
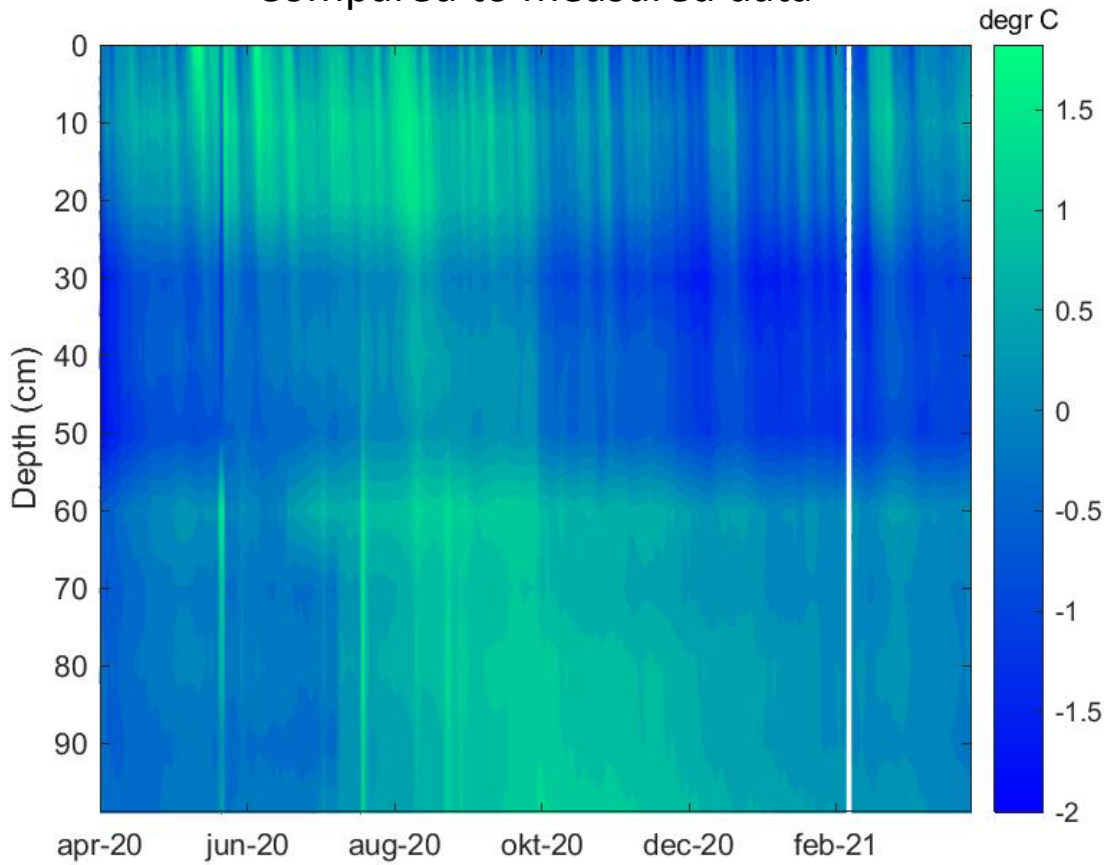
Temperature

Modelled



Compared to measured data



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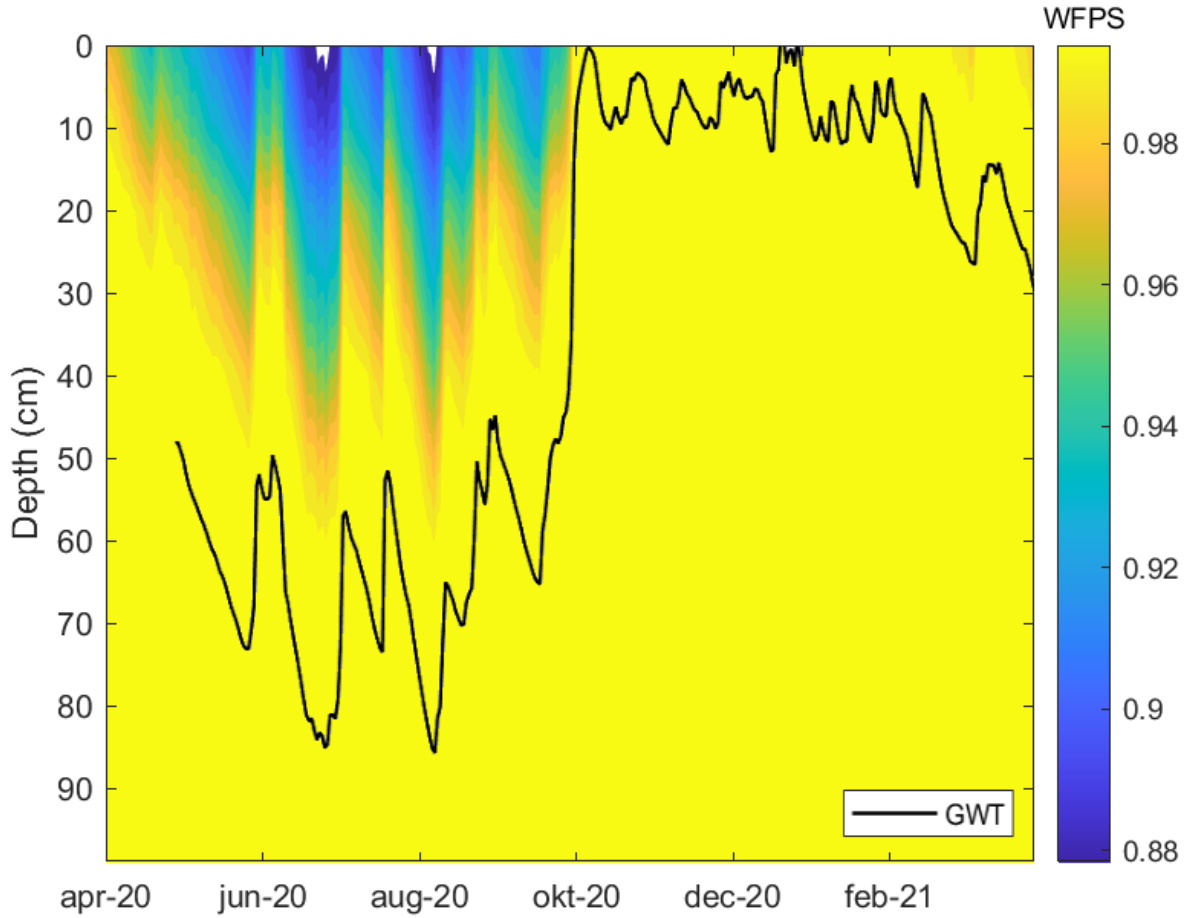
Soil moisture

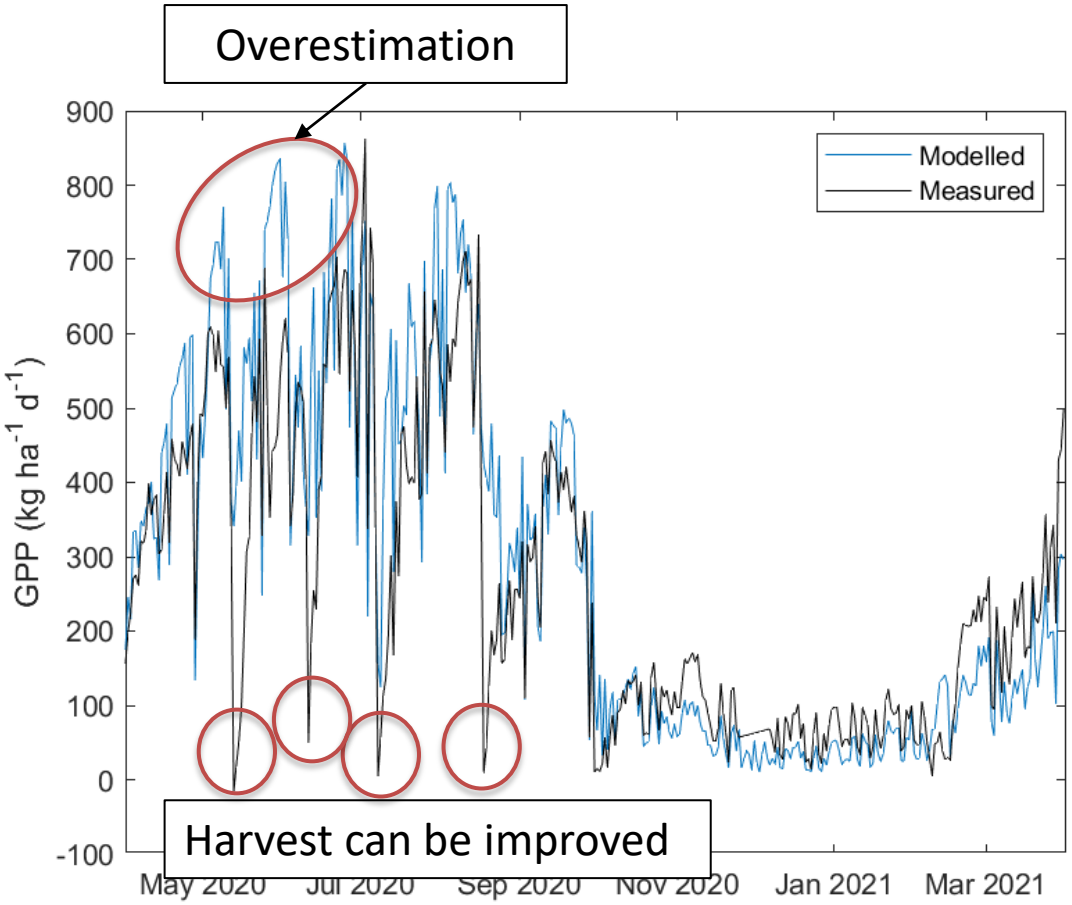


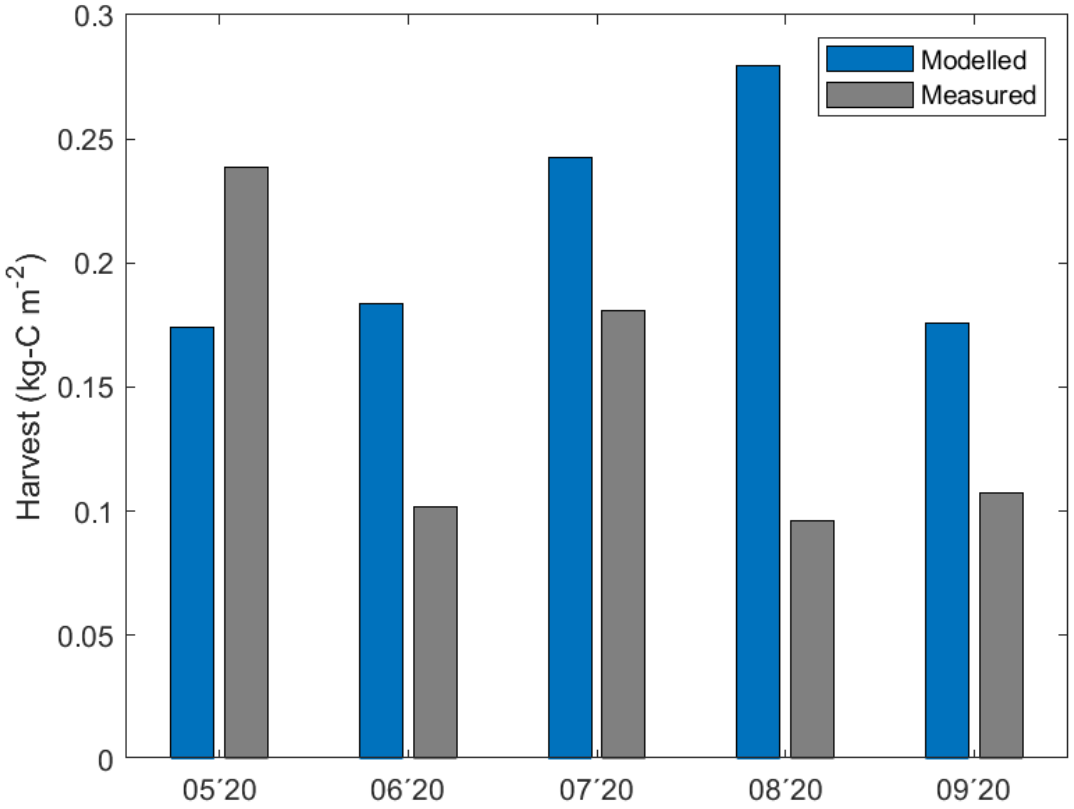
Measured GWT as input

Lab measured pF parameters as input

Validation remains difficult

Gros primary production and harvest





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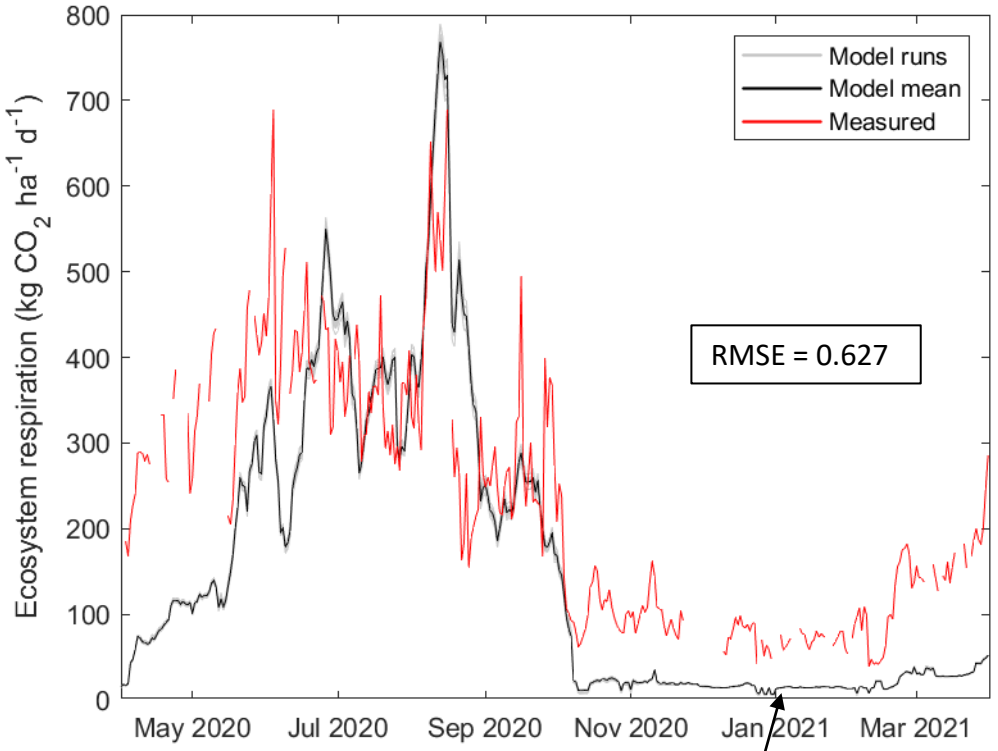
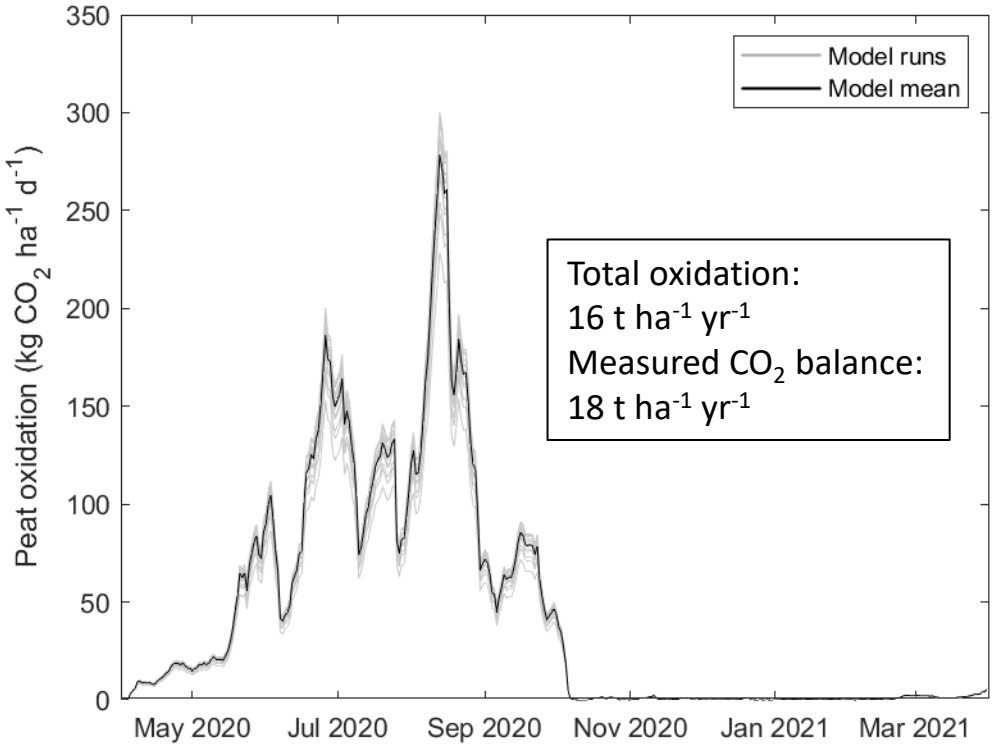
Respiration and peat oxidation

Ecosystem respiration



Underestimation during winter

Peat oxidation



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There is more to do…

- Better optimalisation and sensitivity analysis
- Five drained sites in this project + scenarios
- Three paludiculture/nature sites

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