

# Remotely sensed temperature is a proxy of greenhouse gas emissions in intact and managed peatlands

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## Research problem

Remotely sensed land surface temperature (LST) → in-situ surface/air temperature → ecosystem respiration ( $R_{eco}$ ) in natural peatlands.

### What about disturbed peatlands?

**Aim:** to provide the overview of the LST potential for monitoring  $R_{eco}$  in disturbed (drained and extracted) peatlands.

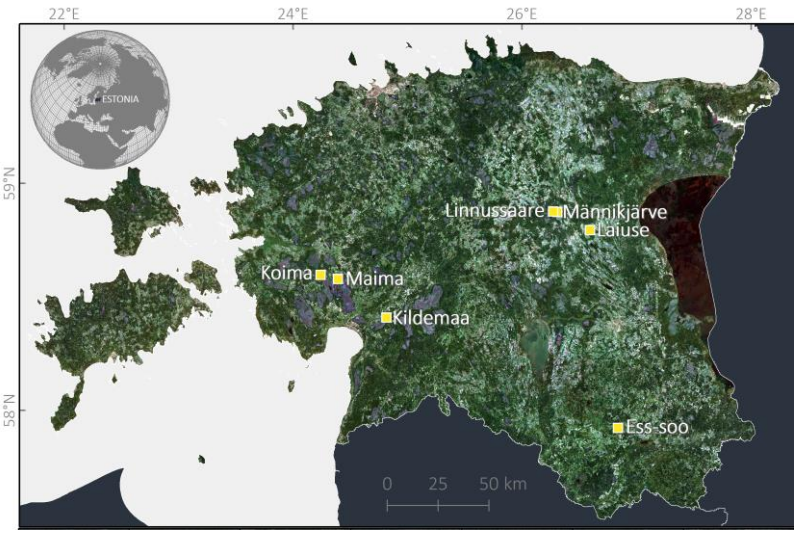
## Data and methods

### In-situ data:

- $R_{eco}$ ,  $CH_4$  fluxes (closed-chamber method),
- surface and soil temperatures,
- water table depth (WTD).

### Remotely sensed LST:

- Landsat 7 and 8,
- MODIS Terra.



## Results and conclusions

- $CO_2$  fluxes are positively associated with temperature increase.
- Spearman correlation between  $CO_2$  fluxes and  $T_{0-40}$  in drained and extracted sites are higher than in intact sites.
- Correlation between LST and in-situ temperatures were higher for **disturbed sites** than for intact ones.
- **Modelling  $R_{eco}$**  with MODIS LST and  $T_0$  yielded comparable accuracy.

