Characterizing peatland vegetation at multiple scales – from field spectroscopy to spaceborne imaging spectroscopy

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Motivation

**Aim:** Asses rewetting success depending on vegetation cover

**Focus:**
- Understand spatio-temporal gradients of reflection from peatland vegetation or grassland
- Investigate the influence of scale

Reed (*Phragmites australis*) at 12 May 2023 (top) and 19 June 2023 (bottom) frontal (left) and nadir perspective (right)

MS drone data (RGB) with the EnMAP-30x30m raster grid
Fraction maps based on the April-June PRISMA data for A) *P. australis*, *Typha* spp., and water, and B) shrublands, wet grasslands, and water.

Fractions maps

April and June PRISMA data

Arasumani et al. 2023
EnMAP scene at 02 June 2023, bands 75, 46, 29

Study area

Rustow Randow

Zarnekow
Remote sensing data
Remote sensing data

EnMAP Scene from 18 August 2023.
RGB: 863 nm, 653 nm, 555 nm.
Remote sensing data

Remote sensing data

Multispectral drone imagery (right), June 2023
(Bohertz). RGB: R,G,B.
Remote sensing data

Multispectral drone imagery (left), June 2023 (Bobertz). RGB: R,G,B.

Hyperspectral drone imagery, June 2023 (Reese). RGB: 645nm, 510nm, 440nm.
Remote sensing data
Vegetation data

2 field campaigns
two weeks in June and September

Plots:
66 plots, à 4m x 4m
60m grid
Fraction covers of water, soil, NPV, green vegetation
All species with respective cover
Phragmites australis – Reed, May

Juncus effusus - May

Phalaris arundinacea – Reed canarygrass, June

Iris pseudacorus - May
Temporal scale

Nadir view, 8° FOV.

June
August
Spatial scale

Nadir view, 8° FOV.
Spatial scale

Agrostis stolonifera
2023-06-08

Eleocharis palustris
2023-06-08

Phalaris arundinacea
2023-06-08

Phragmites australis
2023-06-08

Nadir view, 8° FOV.

June
Outlook

• Data collection: (multitemporal) spectral database, multi- and hyperspectral data

• *Multitemporal vegetation analysis*

• Quantitative mapping of peatland vegetation on rewetted peatlands
  • Spectral unmixing
  • Ordination analysis

• Synergies with S-1/S-2 time series analysis, CopGrün → Thünen Institute