LIFE PEAT RESTORE

Greenhouse gas exchange on degraded and rewetted peatlands

LIFE 15 CCM/DE/000138

Visit us at: https://life-peat-restore.eu

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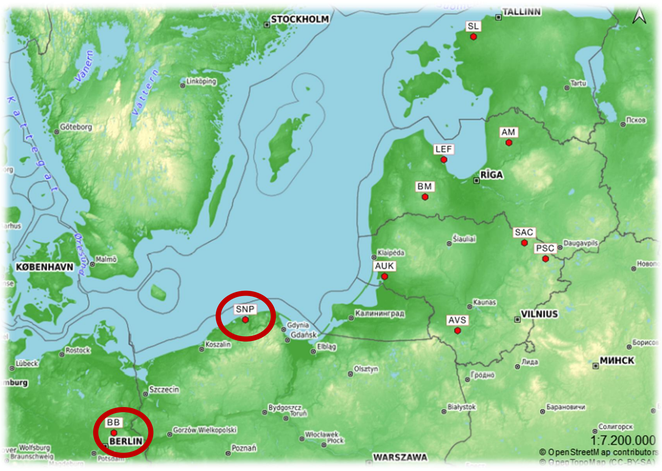
Background

- **Drainage promote the decomposition** of peat, which results in **high emissions** of **carbon dioxide** (CO_2) and nitrous oxide (N_2O)
- Rewetting & **Restoration** of drained and degraded peatlands **reduces Greenhouse Gas** (GHG) **emissions** and could **mitigate effects of the climate change**
- **Higher water tables** can also **promote** the methanogenesis and the **emissions of methane (CH_4)**
- **GHG-Monitoring** is needed for **Estimation** and **Evaluation** of the **climate effect** of **restoration** measures

Project Sites



Code	Site Name	Ecosystems (close to the measurement plots)
SL (EST)	Suursoo-Leidissoo	Calcareous fen meadows, swamp & transitional mire forest, a.o.
AM (LAT)	Augstroze Mire	Degraded Raised bog & degraded bog woodland
LEF (LAT)	Lake Engure Fen	Calcareous fen meadows
BM (LAT)	Baltezers Mire	Bog woodland & transitional mire meadows
SAC (LIT)	Sachara	Degraded Bog woodland
PSC (LIT)	Puščia	Former peat cut-off area, bare peat
AUK (LIT)	Aukštumala	Active and Former peat cut-off area, bare peat
AVS (LIT)	Amalvas	Degraded Bog woodland
SNP (POL)	Slowinski National Park	Bog Heath
BB (GER)	Biesenthaler Becken	Swamp forest

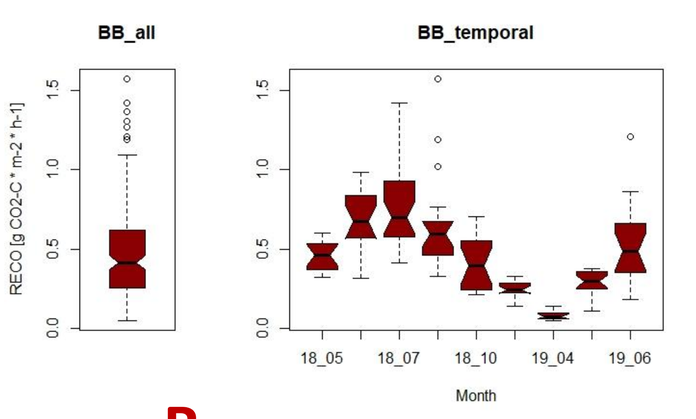
Methods

Great Thanks to M. Kupetz and the colleagues of Silava for field measurements

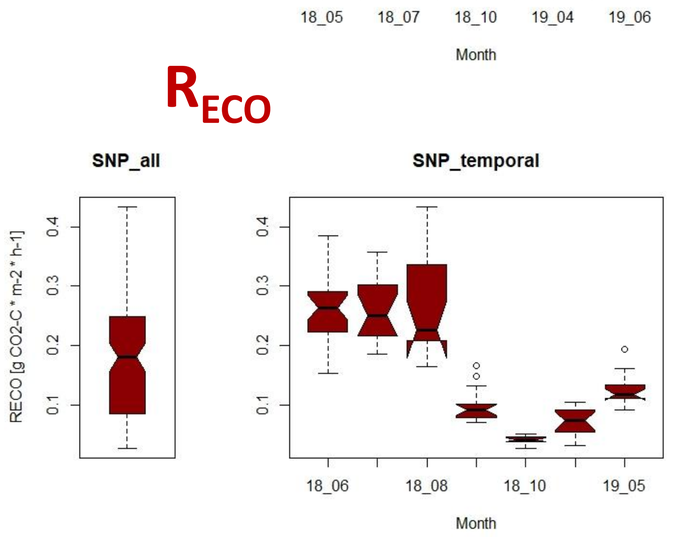
- Manual Chamber Method (acc. to ALM et al. 2007, DRÖSLER et al. 2005) with transparent and opaque chambers equipped with a cooling system
- 3-5 spatial repetitions per site
- Automated in-situ CO_2-measurements (R_{ECO}, NEE) by Infrared gas analyzer (Li-6400; Li-810 COR, EGM5)
- Manual and automatic sampling for CH_4 and N_2O analysis in the laboratory
- Additional measurements of soil temperature, soil moisture, photosynthetic radiation, water table, forest inventory data and climatic parameter)
- 2-4 weekly measurement campaigns throughout the vegetation period with several single measurements at different radiation and temperature conditions per measurement day
- Flux calculation by using the ideal gas equation;
  Δc was calculated by linear regression

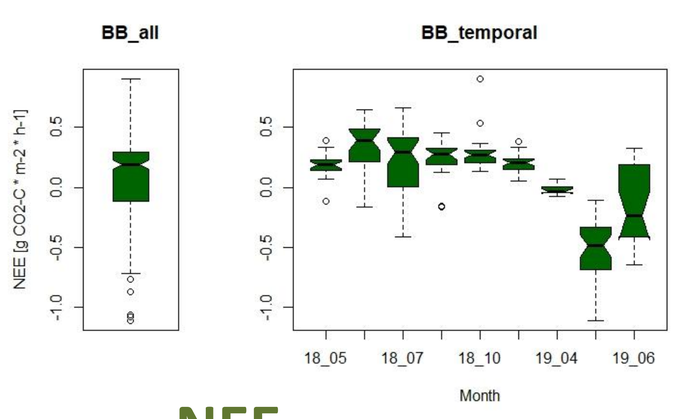
$$F_{GHG} = \frac{M * P * V * \Delta c}{R * T * A}$$

First Results

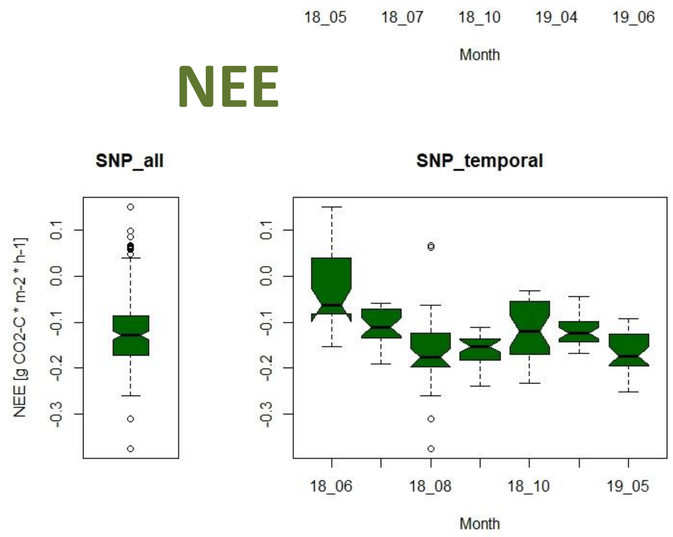


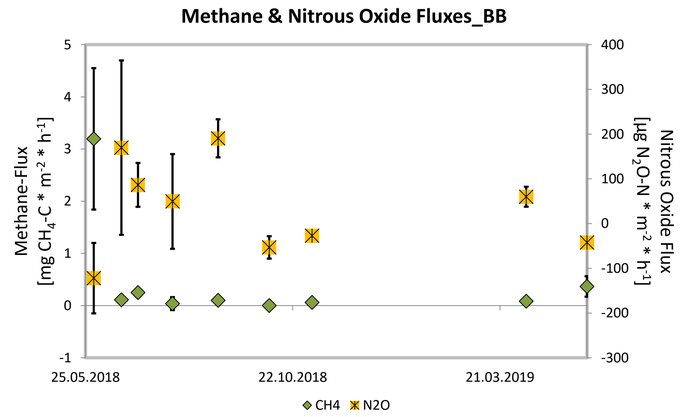
R_{ECO}

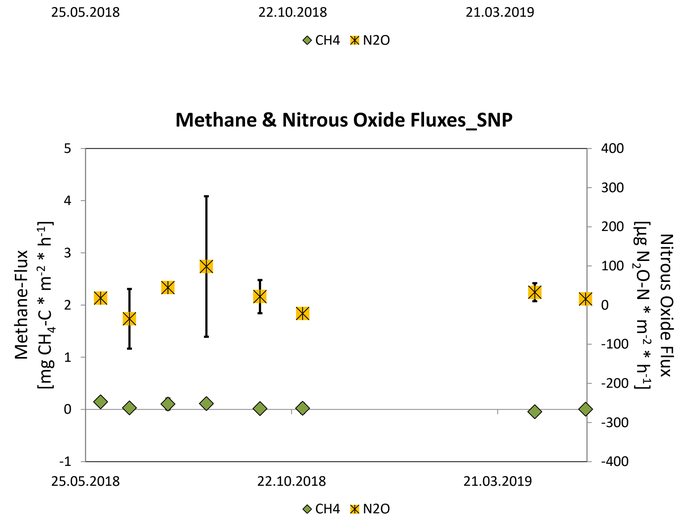




NEE







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