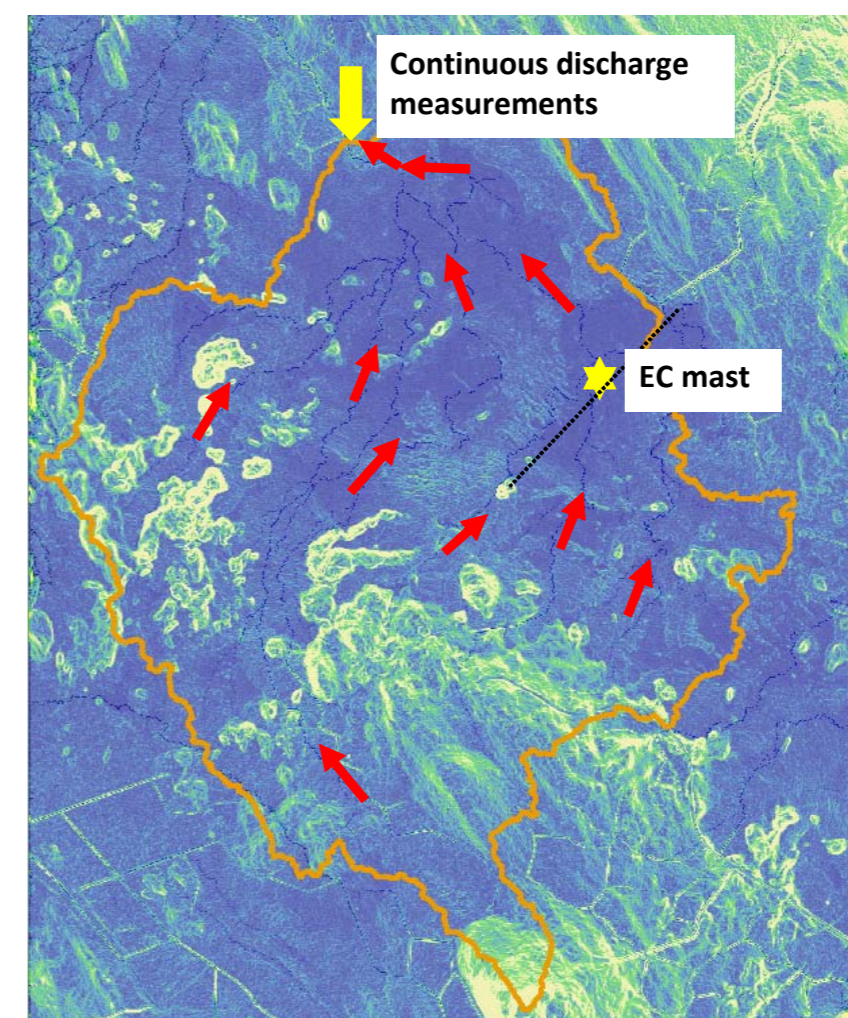


Degerö oligotrophic mire

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Degerö Stormyr (64° 11' N, 19° 13' E) is an ecosystem ICOS station, operated by Swedish University of Agricultural University. The ICOS installations have been in operation since 2013. It is a nutrient poor mire, representing much of the mire areas in the Boreal region.

Intense research activity in the area started ~ 1910 and the first doctoral thesis from Degerö Stormyr was published 1923 by Carl Malmström. More recent research on mire biogeochemistry and biosphere-atmosphere exchange processes started 1995.



Degerö Stormyr
(LIDAR – DEM; 2x2m resolution)

Catchment size:

3.1 km²

Forest: 31%
Pinus sylvestris
(*Picea abies*)

Mire: 69 %

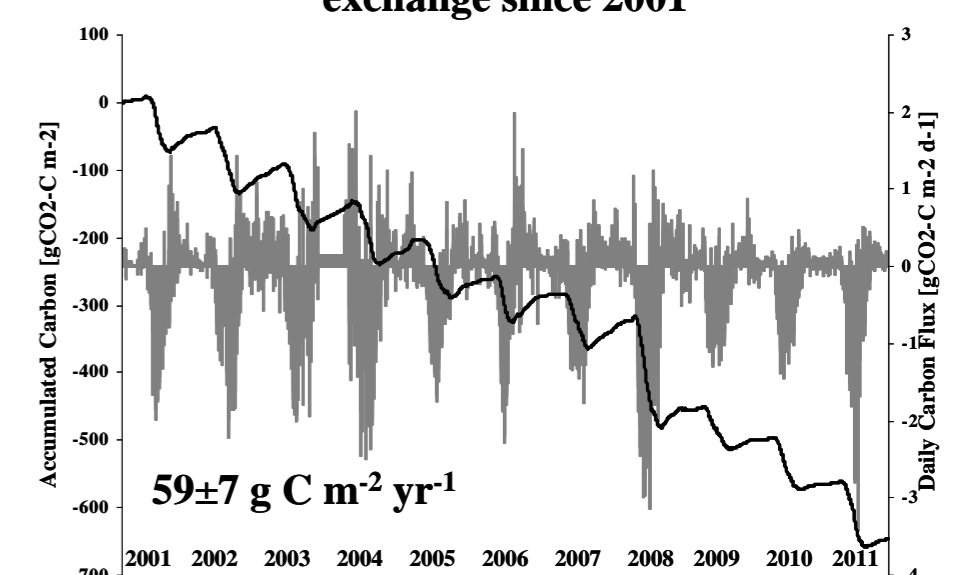
Blue: mire area
Green/Yellow: forested mineral soils
Red arrows: surface water flow directions

Degerö Stormyr is part of a rather complex system of interconnected smaller mires, divided by islets and ridges of glacial till, is situated on highland between two major rivers, Umeälven and Vindelälven, ca 70 km from the Gulf of Bothnia. The depth of the peat is generally between 3-4 m, with depths up to 8 m. The deepest peat layers correspond to an age of ~5800 years.

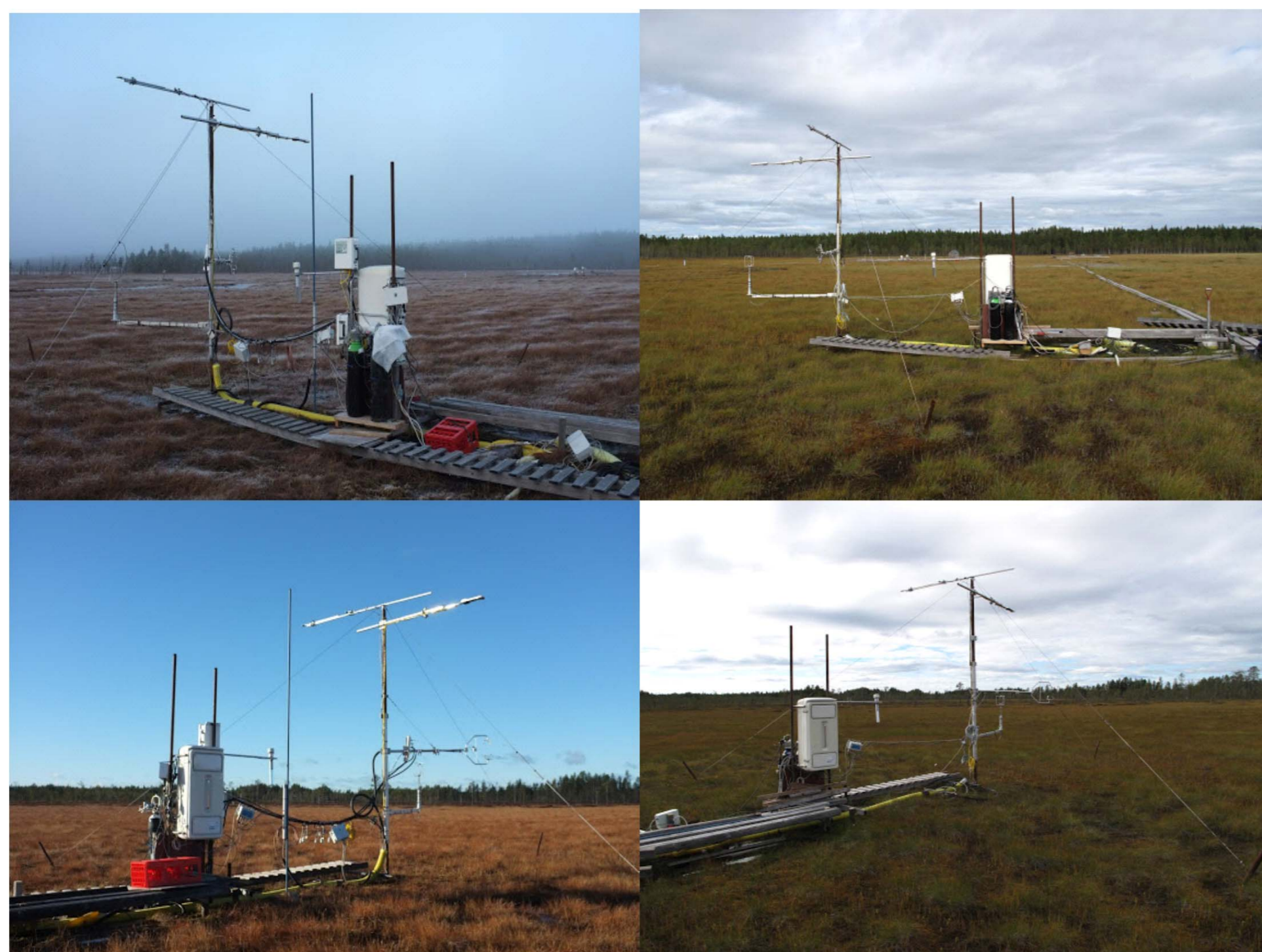
Degerö Stormyr C-flux measurements & data availability

Air & Soil abiotics	2001 →
CO ₂ NEE (Eddy Covariance)	2001 →
CH ₄ (chambers)	2003 →
CH ₄ (Eddy Covariance)	2013 →
Discharge C export	2004 →
Phenology (time laps photography)	2012 →
Storage (CO ₂ , CH ₄)	2013 →

Continuous measurements of EC CO₂ exchange since 2001



Continuous measurements of the biosphere-atmosphere exchange of CO₂ by Eddy Covariance (EC) started 2001. Since > ten years we full coverage on all significant carbon fluxes at the site (biosphere-atmosphere flux of CO₂ and CH₄ and discharge export of both organic and in-organic carbon [1,2,3].



The area around the measurement mast is dominated by flat mire lawn plant communities with bog moss (*Sphagnum balticum*, *Sphagnum majus* and *Sphagnum Lindbergii*) dominating the bottom layer. The field layer is dominated by the sedge *Eriophorum vaginatum* and the draf-shrubs *Vaccinium oxycoccos* L., *Andromeda polifolia* with *Trichophorum cespitosum* and *Carex* spp. occurring more sparsely. Average water table depth during the growing season is 10 – 25 cm below the mire surface .

Annual temperature is +1.2 ° C and precipitation 523 mm (1961-1990). Lodging and basic laboratory facilities are available ~10 km away.

[1] Peichl, M., J. Sagerfors, A. Lindroth, I. Buffam, A. Grelle, L. Klemedtsson, H. Laudon, and M. Nilsson (2013) Energy exchange and water budget partitioning in a boreal minerogenic mire, *J. Geophys. Res.*, 118, 1-13, doi:10.1029/2012JG002073

[2] Peichl, M., Öquist, M., Ottosson-Löfvenius, M., Ilstedt, U., Sagerfors, J., Grelle, A., Lindroth, A., Nilsson, M.B. (2014) A 12-year record reveals pre-growing season temperature and water table level threshold effects on the net carbon dioxide uptake in a boreal fen, *Environmental Research Letters* 9 055006 doi:10.1088/1748-9326/9/5/055006

[3] Nilsson, M., Sagerfors, J., Buffam, I., Laudon, H., Eriksson, T., Grelle, A., Klemedtsson, L., Weslien, P. and A. Lindroth (2008) Contemporary carbon accumulation in a boreal oligotrophic minerogenic mire – a significant sink after accounting for all C-fluxes *Global Change Biology* 14, 1–16, doi: 10.1111/j.1365-2486.2008.01654.x