

Ecosystem-scale carbon monoxide exchange and partitioning across major biomes in Europe

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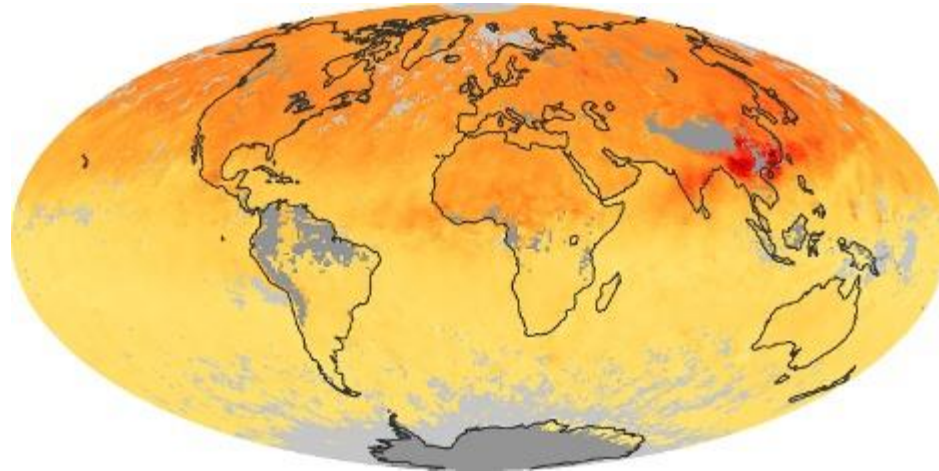
³ Max Planck Institute for Biogeochemistry, Jena, Germany

⁴ Estonian University of Life Sciences, Institute of Agricultural and Environmental Sciences, Tartu, Estonia

⁵ Universidad de Extremadura, Forest Research Group, Plasencia, Spain

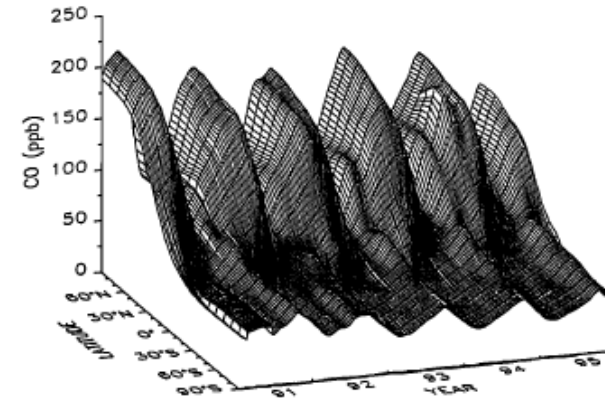
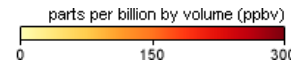


CO, seriously!



April 2014
NEO – NASA EARTH OBSERVATIONS

Images created by Jesse Allen, NASA's Earth Observatory, using data provided by the National Center for Atmospheric Research (NCAR) and the University of Toronto MOPITT Teams.



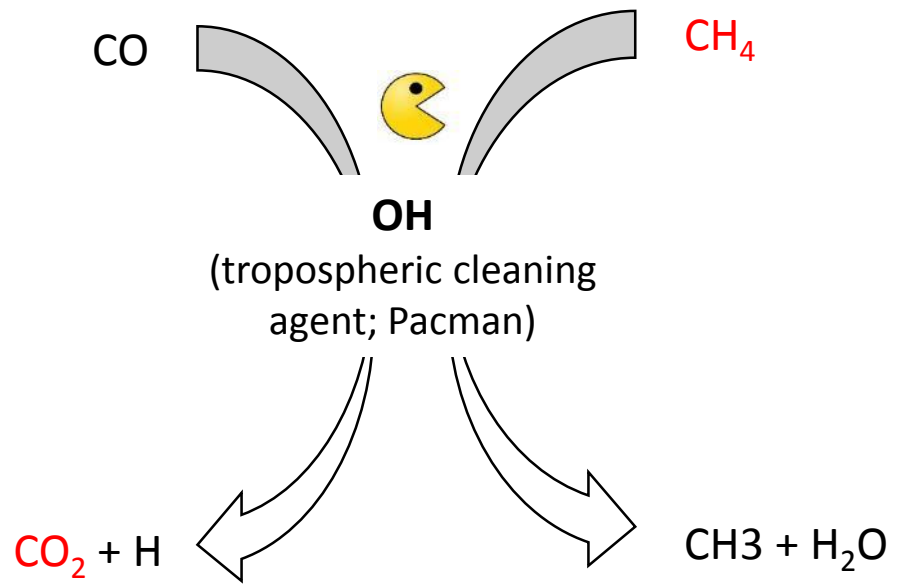
Novelli et al., 1998

Sources:

- Oxidation of hydrocarbons
- Emission by biomass and fuel burning
- Photochemical production in leaves

Sink:

- Reaction with OH
- Deposition on soils
- Bacteria





AUT - Neustift
temperate grassland
cut 4 times/a



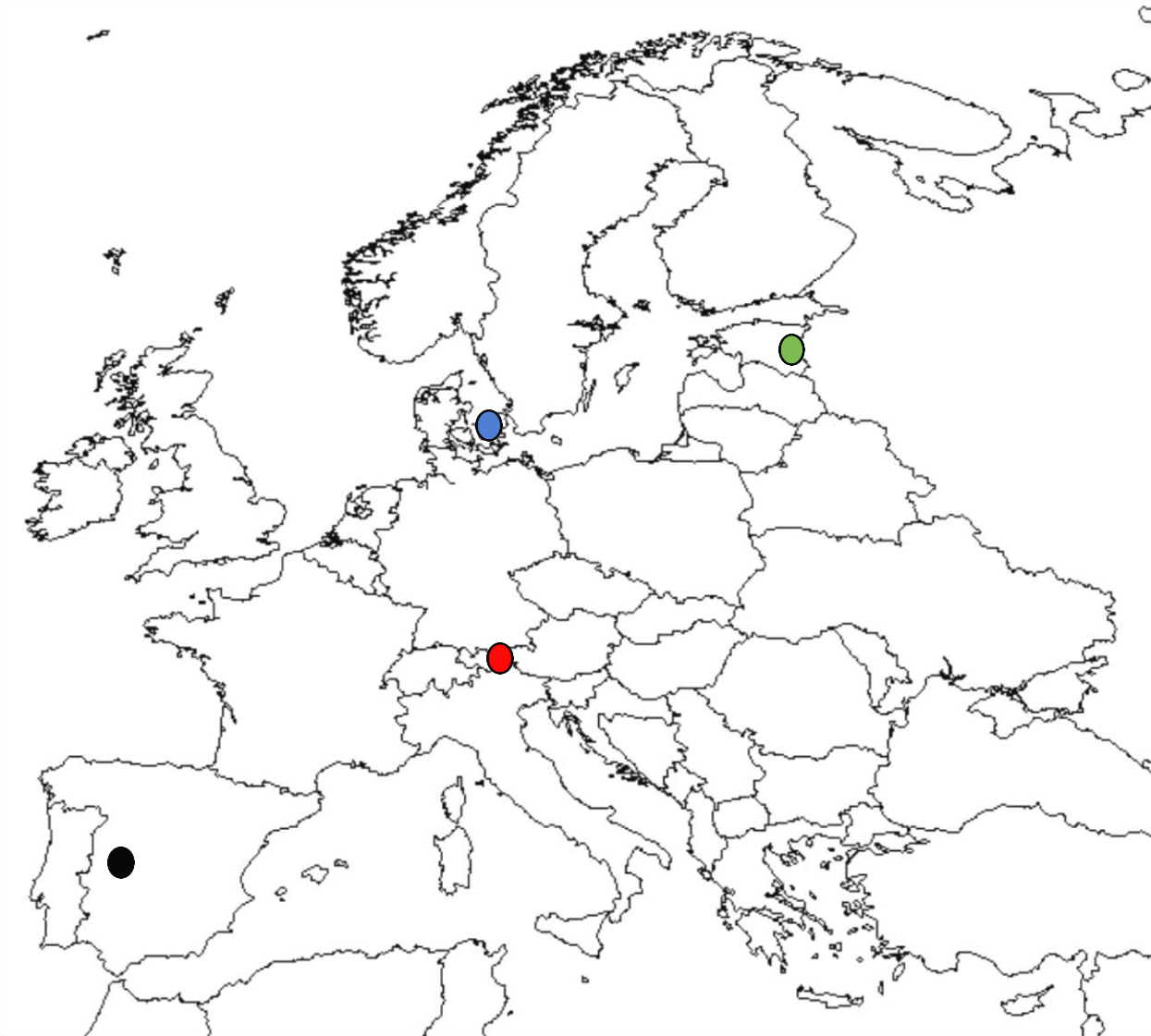
ESP – Las Majadas
Mediterranean savanna



DEN - Sorø
temperate mixed
deciduous

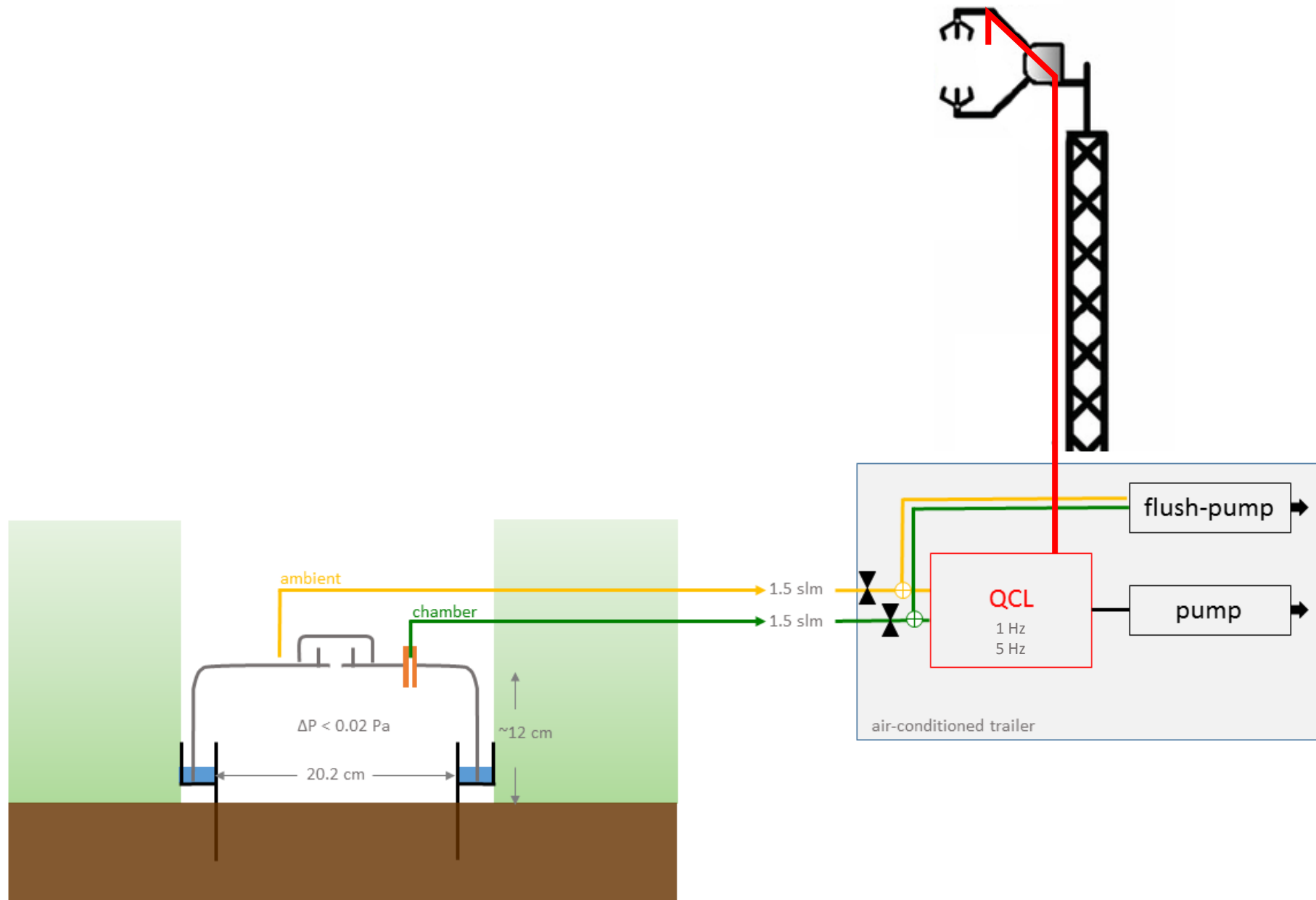


EST - Järvelja
hemi-boreal forest



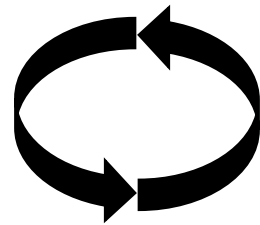
2016







Eddy covariance

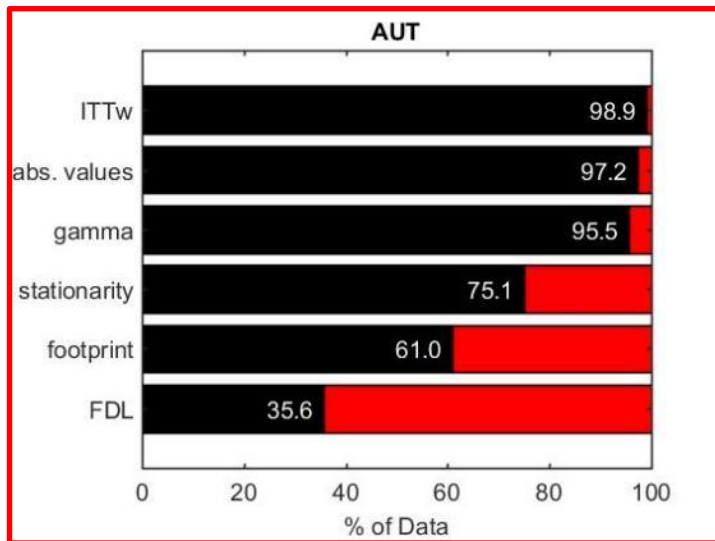




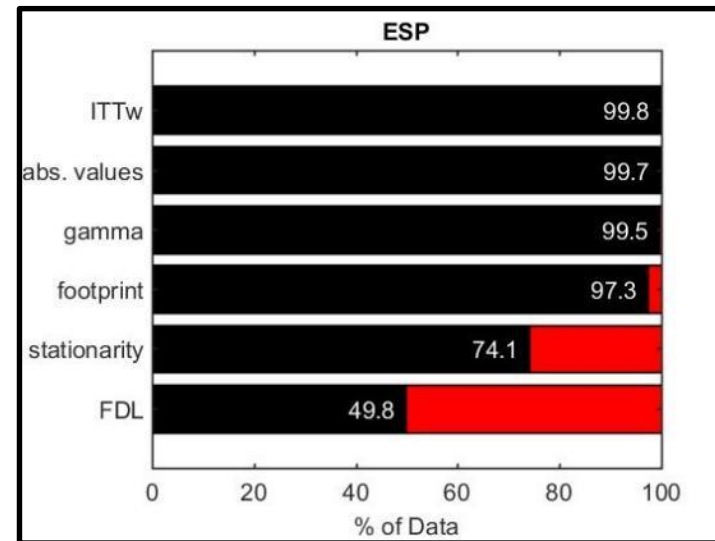
1 – Eddy Covariance



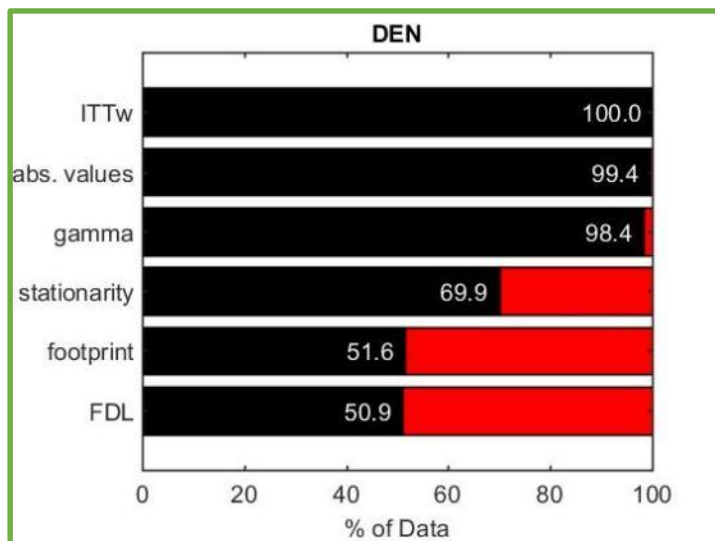
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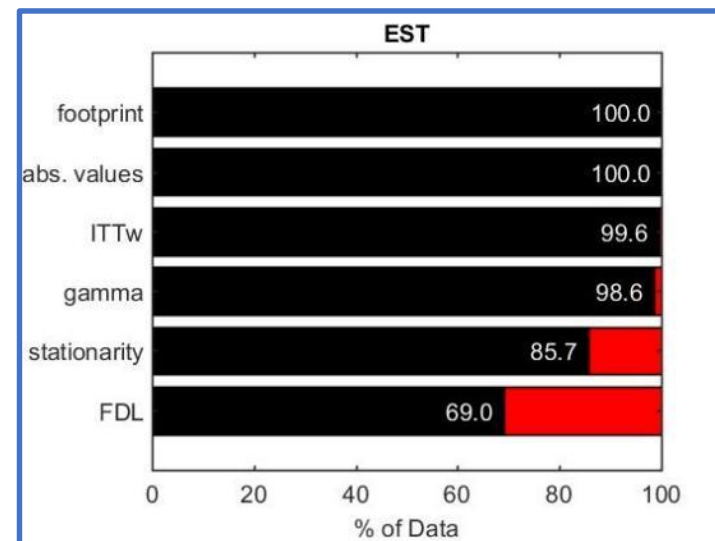
44%



21%

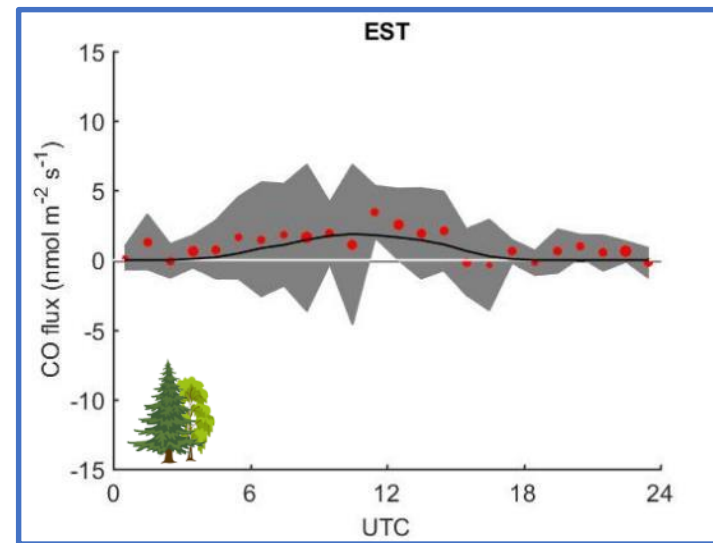
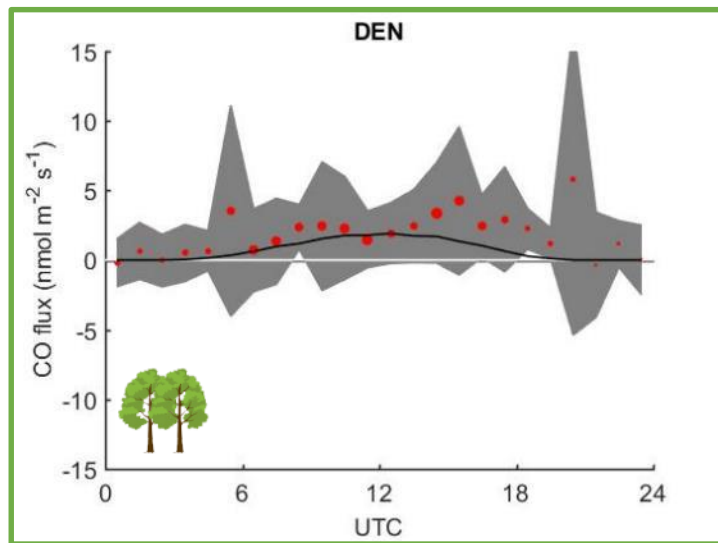
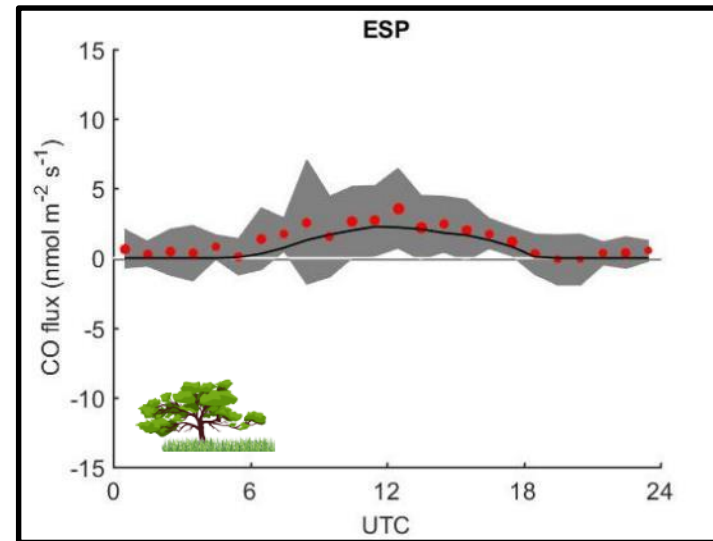
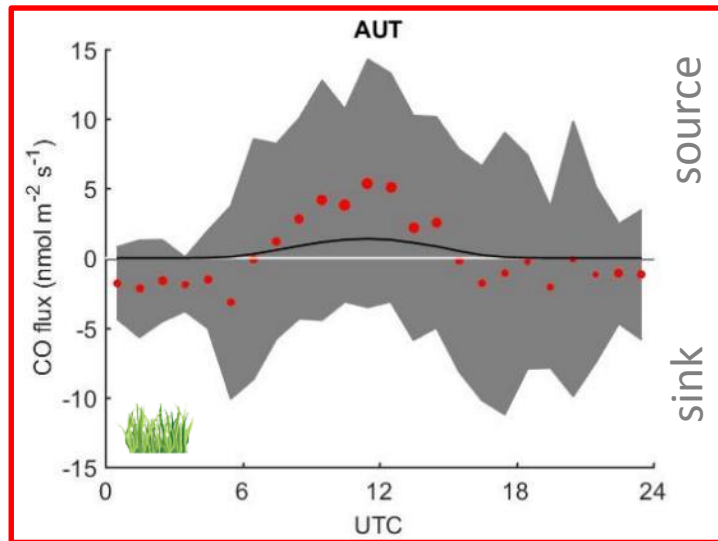


66%





1 – Eddy Covariance



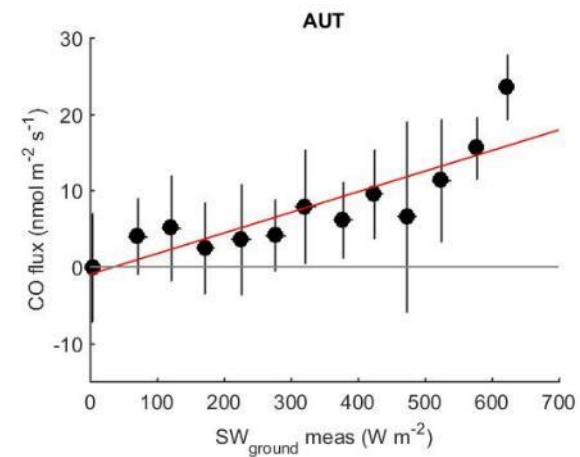
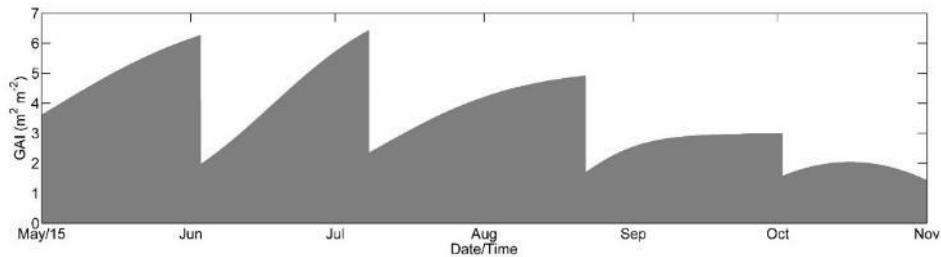
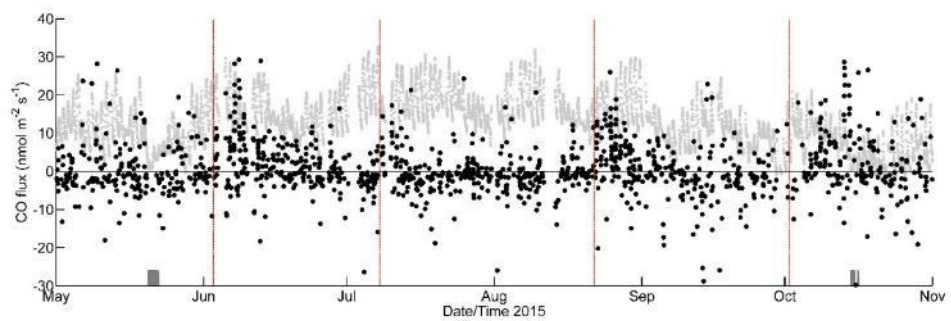
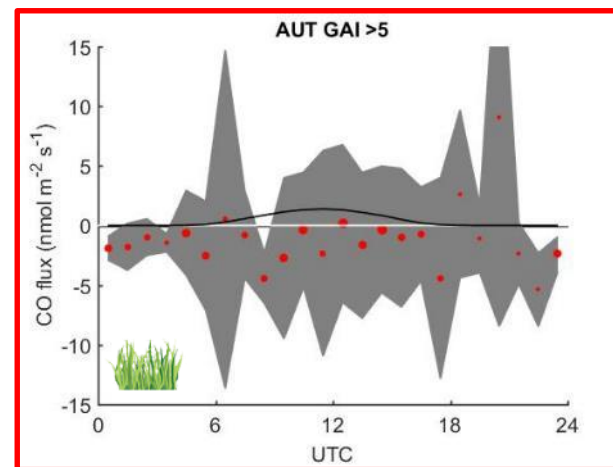
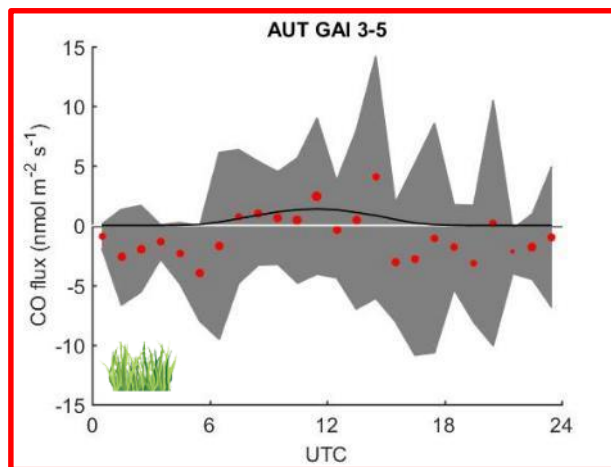
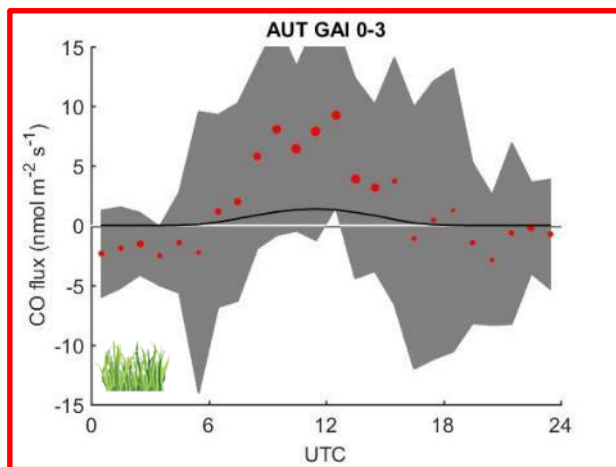
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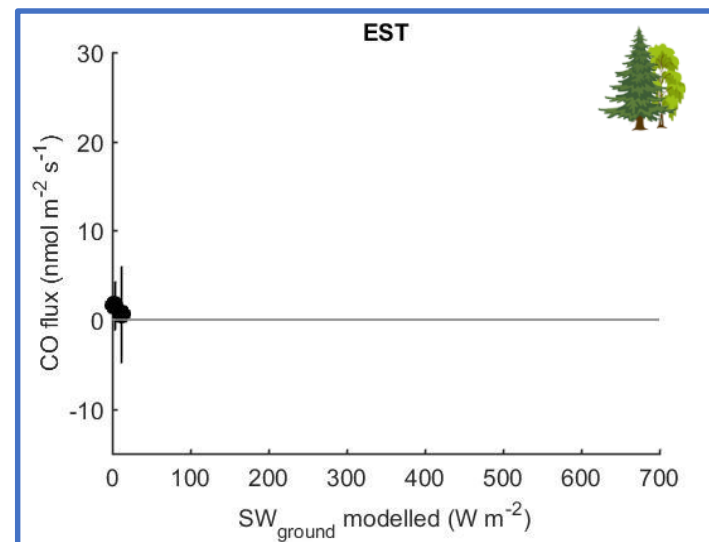
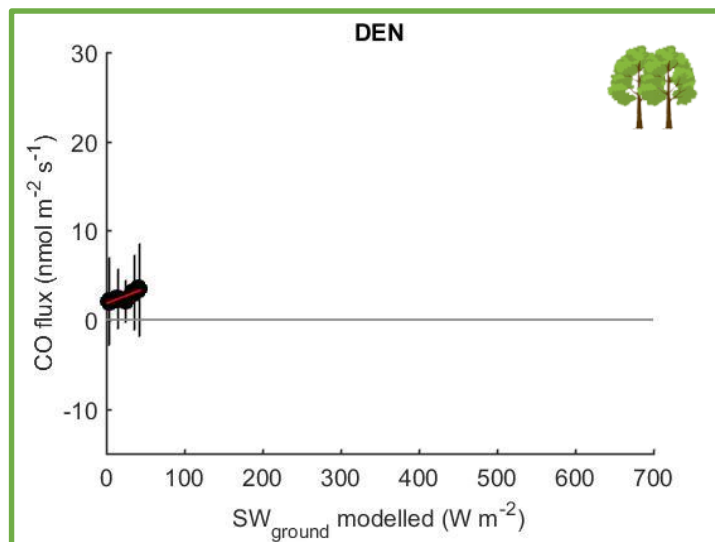
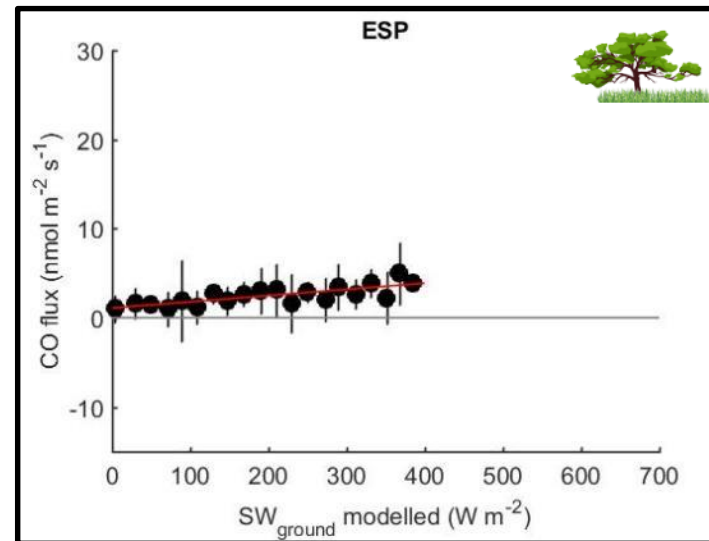
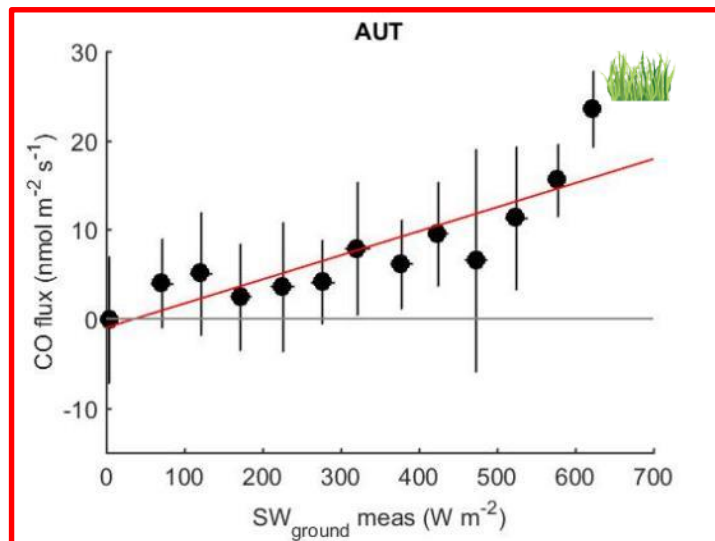


MEGAN 2.1



1 – Eddy Covariance

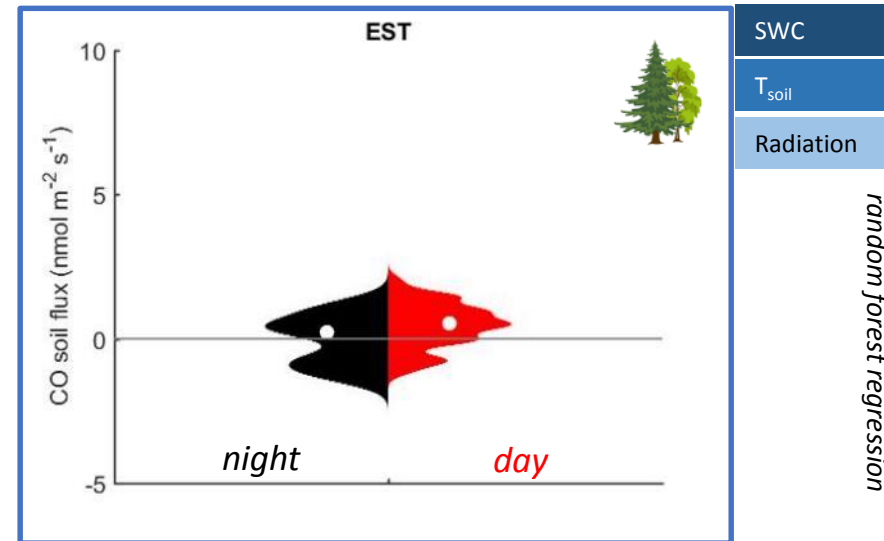
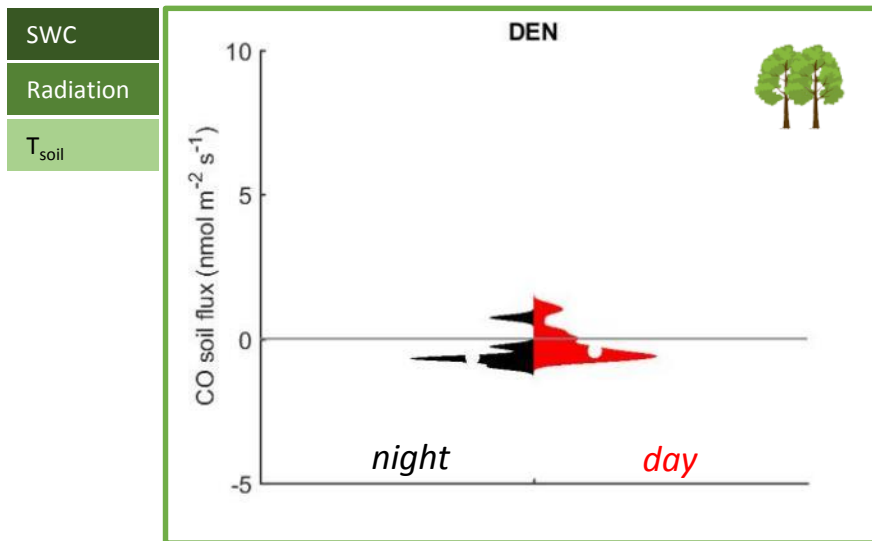
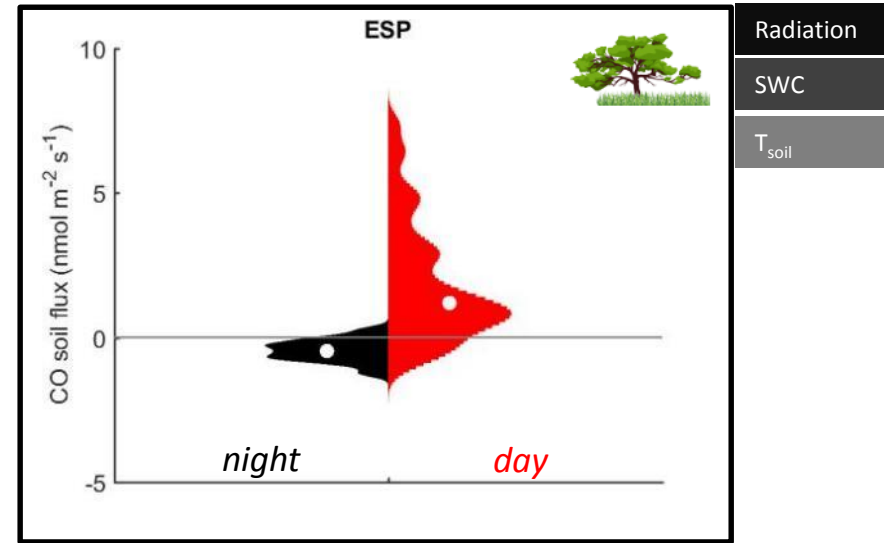
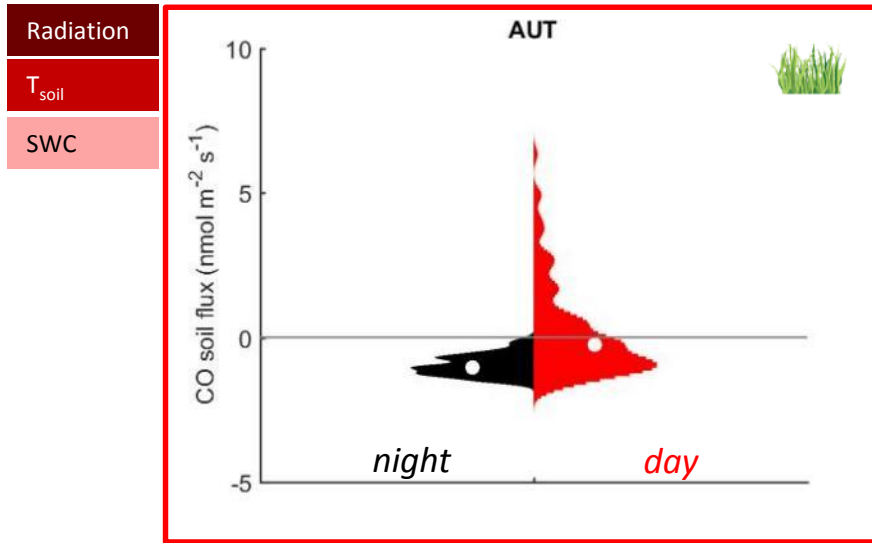






Soil fluxes





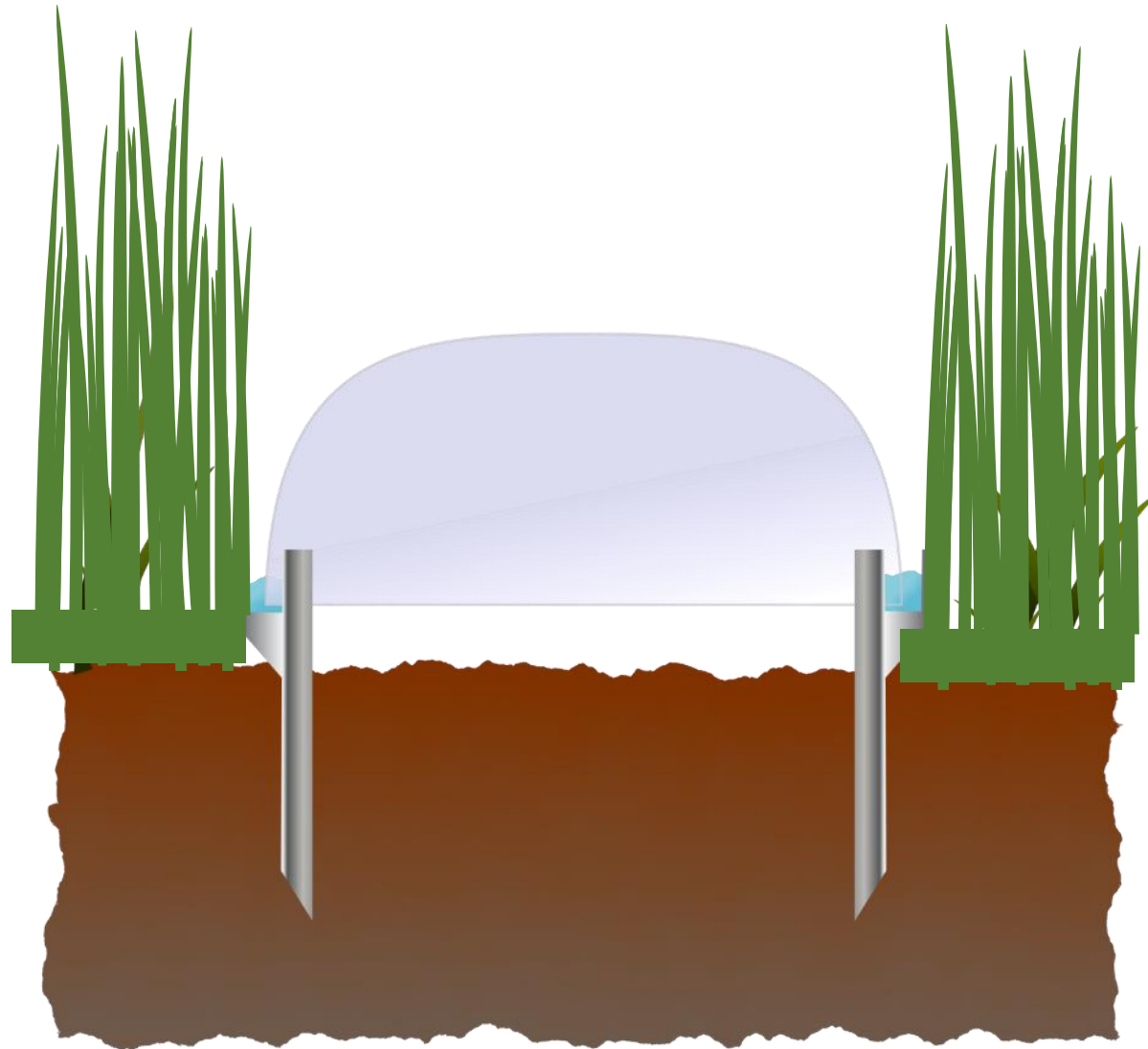
source

sink

source

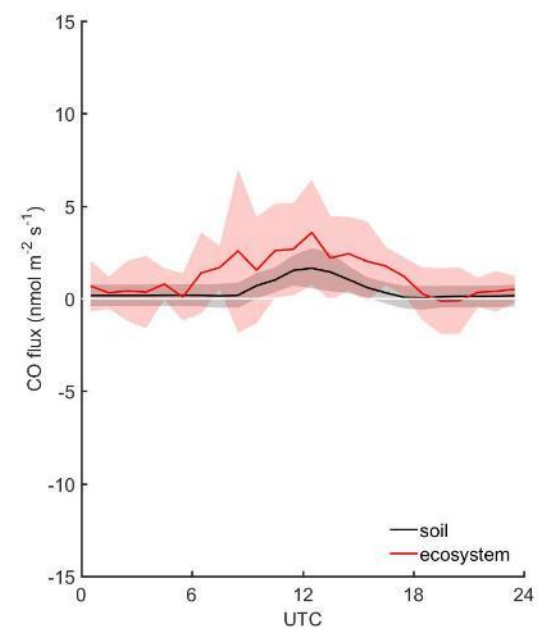
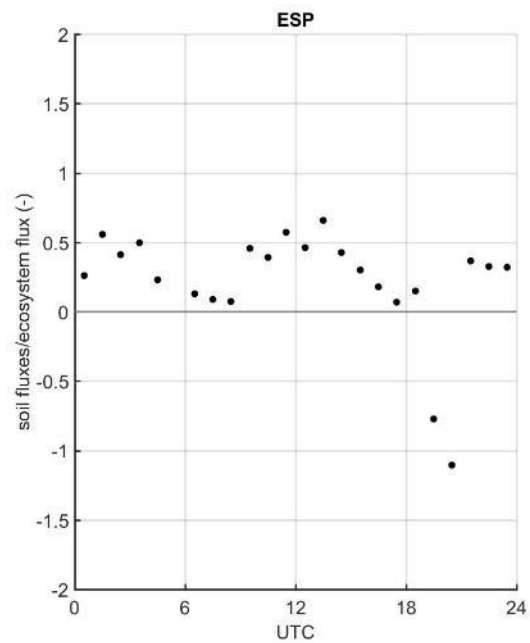
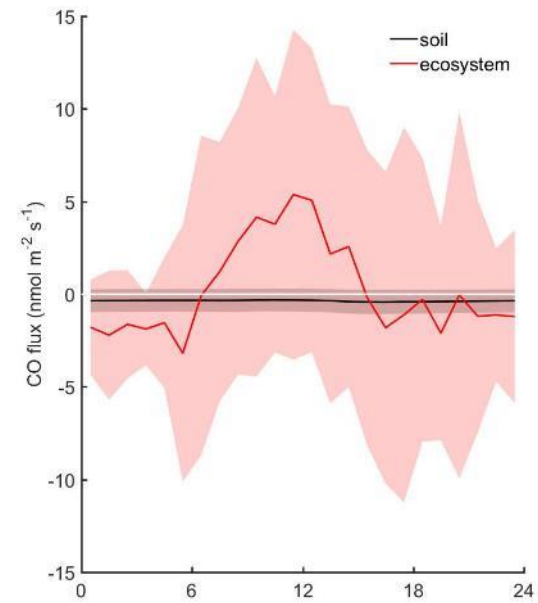
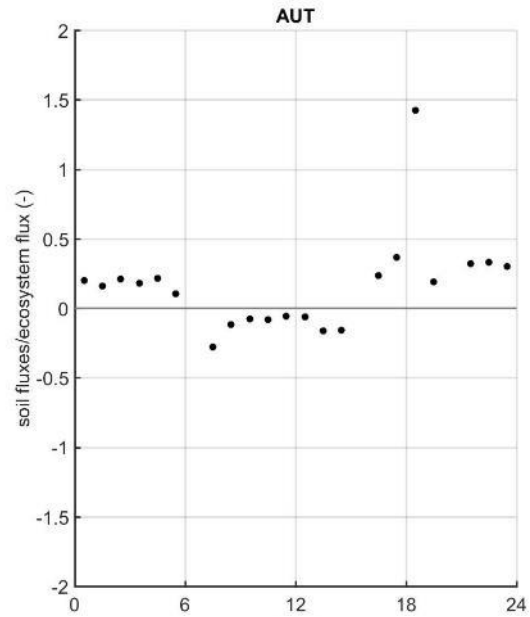
sink

random forest regression





2 – Soil Fluxes



source

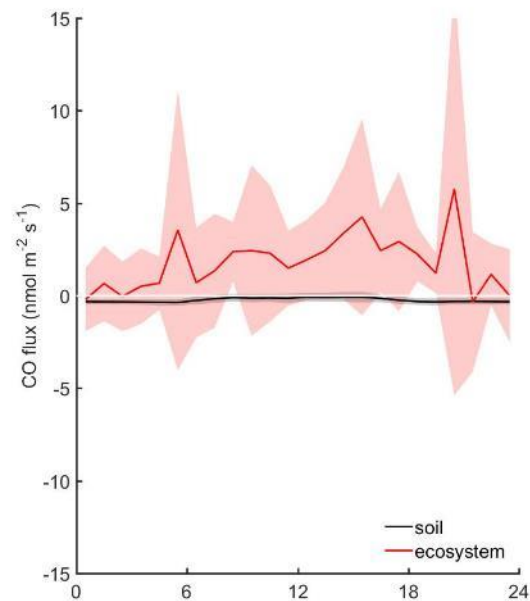
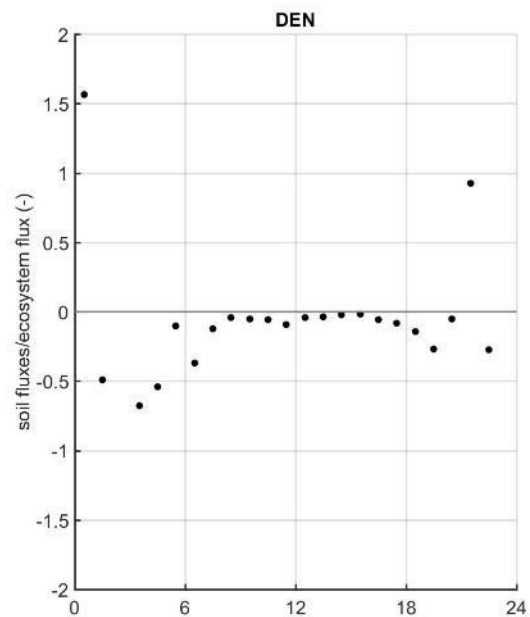
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source

sink

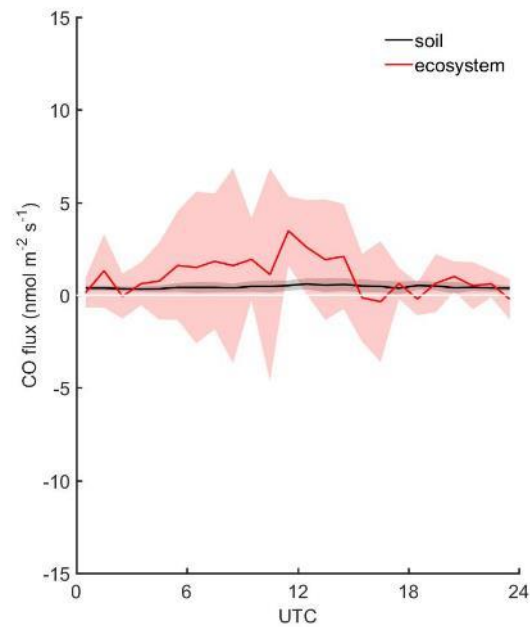
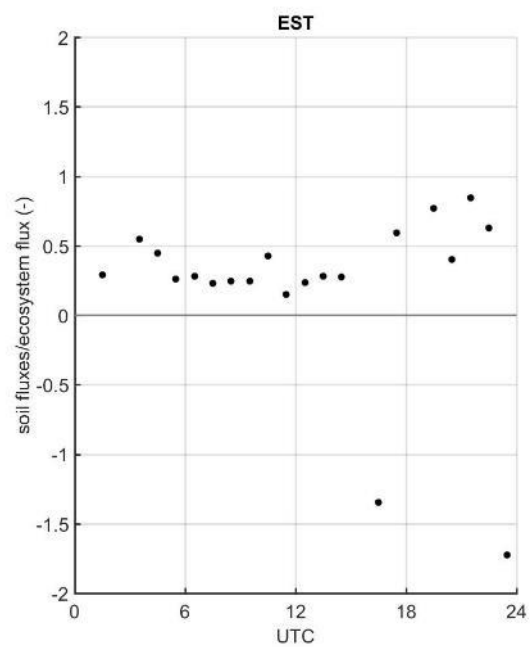


2 – Soil Fluxes



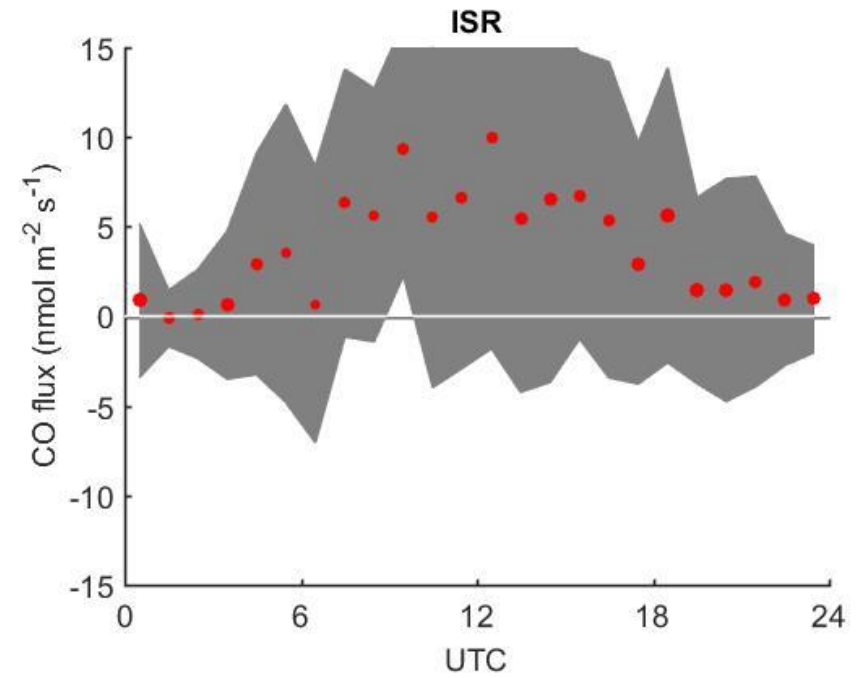
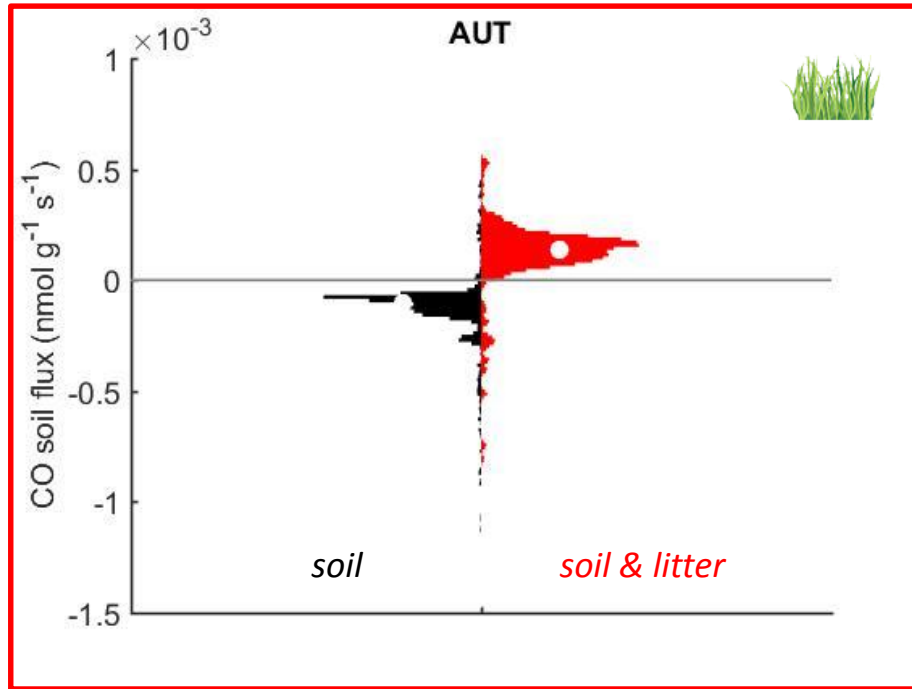
source

sink



source

sink





Neutral at night – source by day

Fluxes from soil/litter highly light-dependent

Models get CO +/- right, partly for the wrong reasons

It's the light reaching the ground

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