

Eco-hydrological soil carbon fluxes in established Nature-based solutions for soil protection

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NBS using vegetation



Naturalea (2019)



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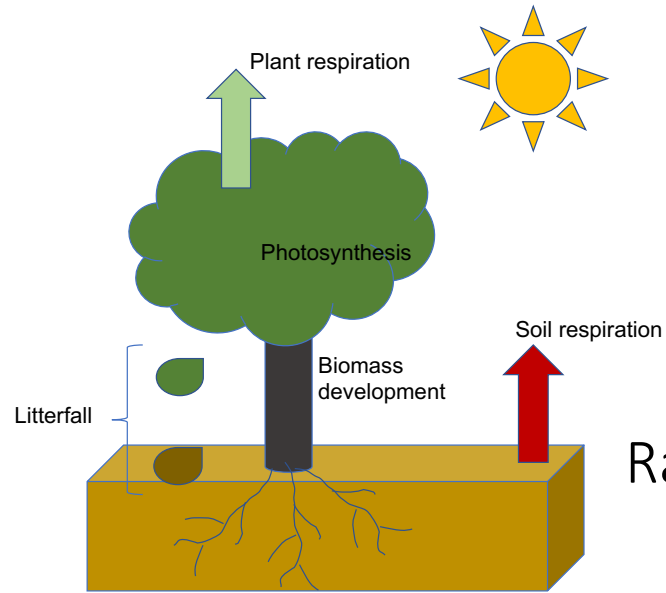
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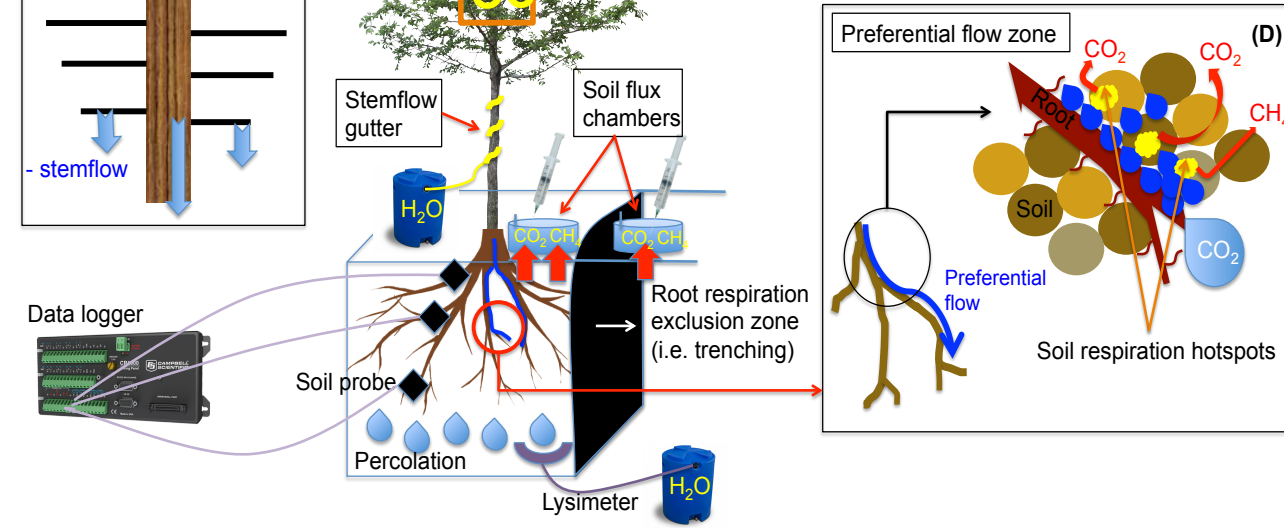
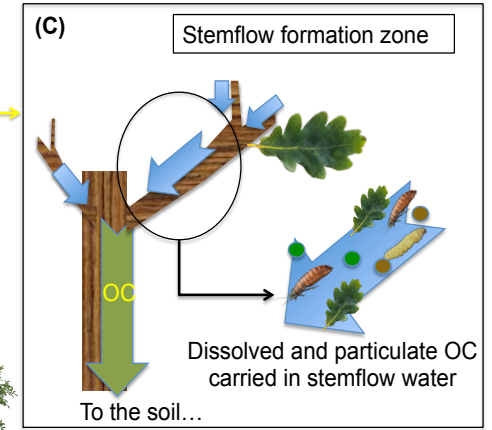
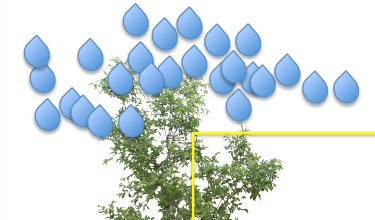
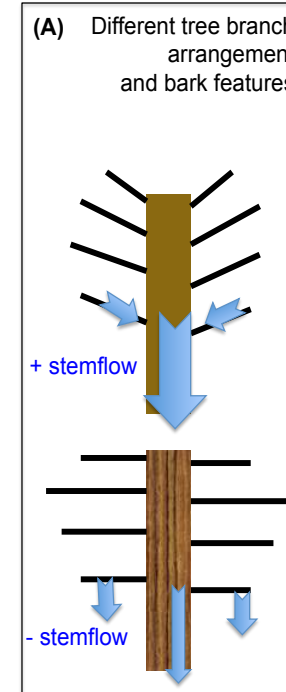
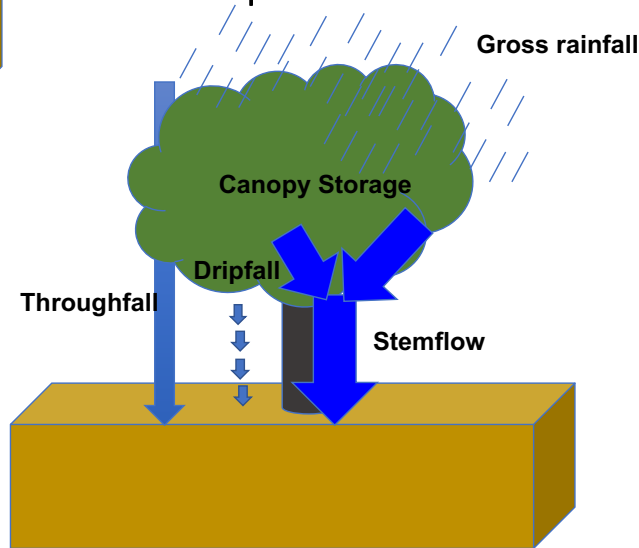
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C-cycle in NBS

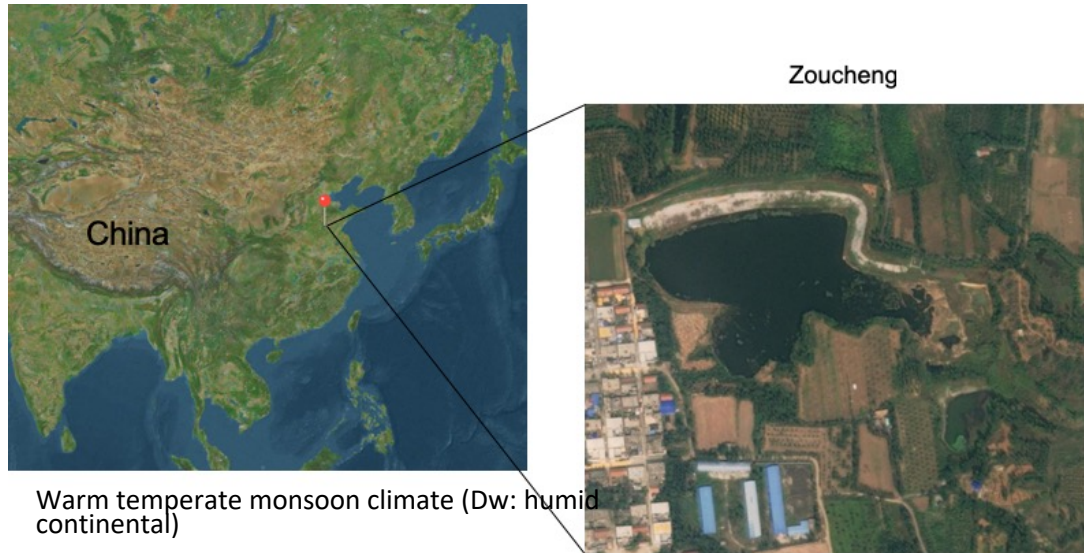


Rainfall partition in NBS



Study aim

To quantify soil carbon fluxes under changing meteorological conditions in a tree-vegetated embankment in order to ascertain the effect of rainfall partition at the tree's canopy on carbon cycling



Zoucheng

Land subsidence



Land reclamation



Black poplar



Persimmon



China berry

- Warm temperate monsoon climate (Dw: humid continental)
- Mean annual rainfall – ca. 800 mm
- Mean daily temperature – ca. 14 °C
- Soil – fluvo-aquic



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Study setup



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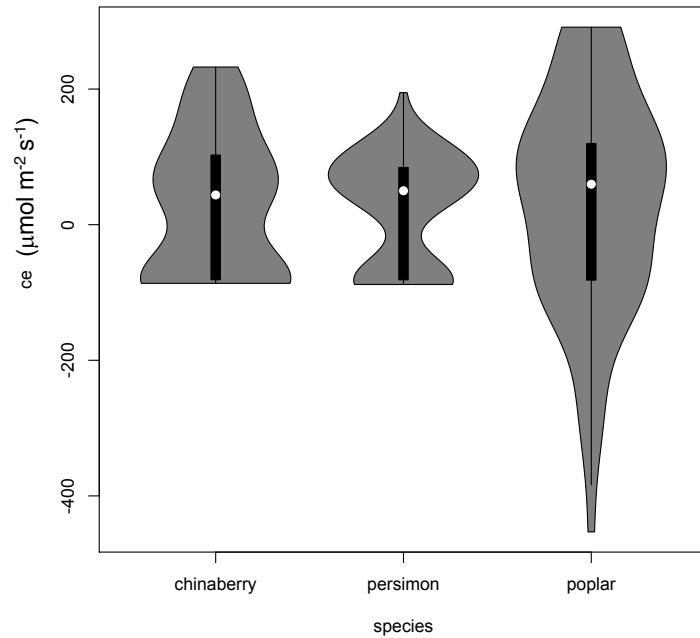
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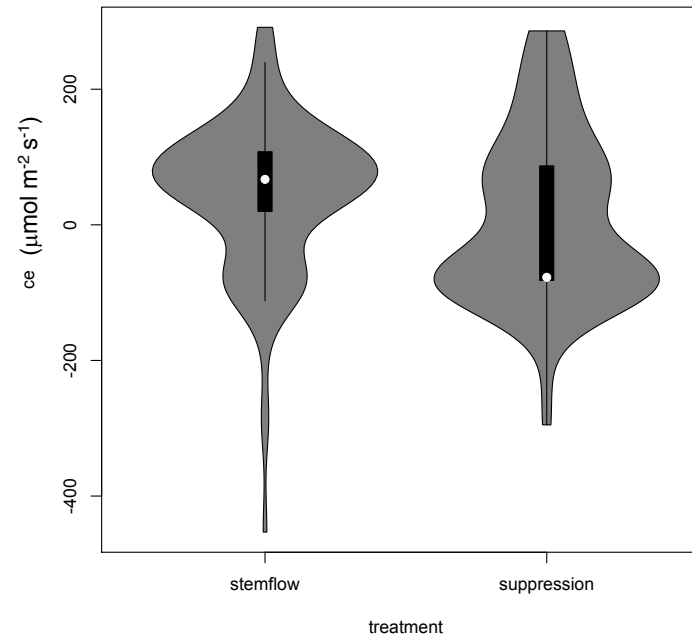
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Results

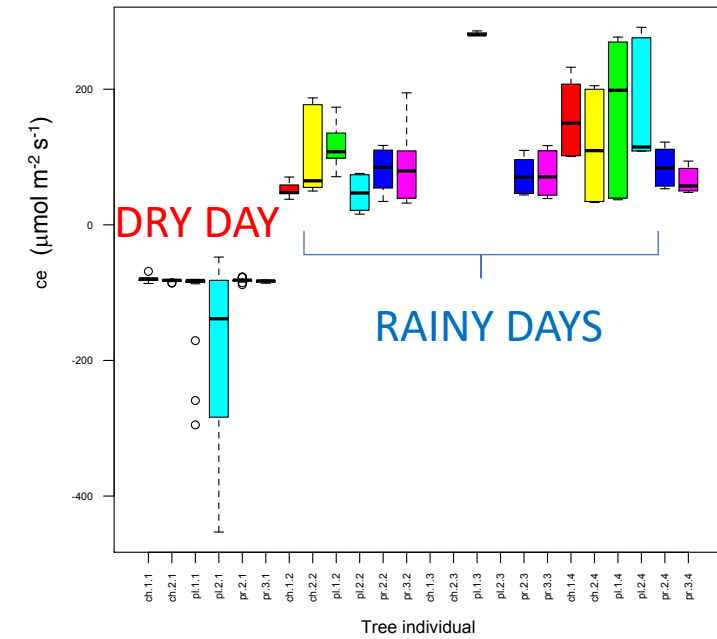
Carbon flux per tree species



Carbon flux per treatment



Carbon flux



ch: chinaberry
pl: black poplar
pr: persimmon



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Conclusion

- Rainfall influenced soil carbon efflux significantly
- Soil carbon efflux was higher when stemflow was allowed to infiltrate in the soil
- No differences between species detected
- Unable to capture effect of tree architecture on rainfall partitioning
- Longer time series – better assessment of the effect of stemflow
- Experimental setup limitations