

What do **carbon fractions** and **C:N ratios** tell us about the origin of carbon in German agricultural soils?

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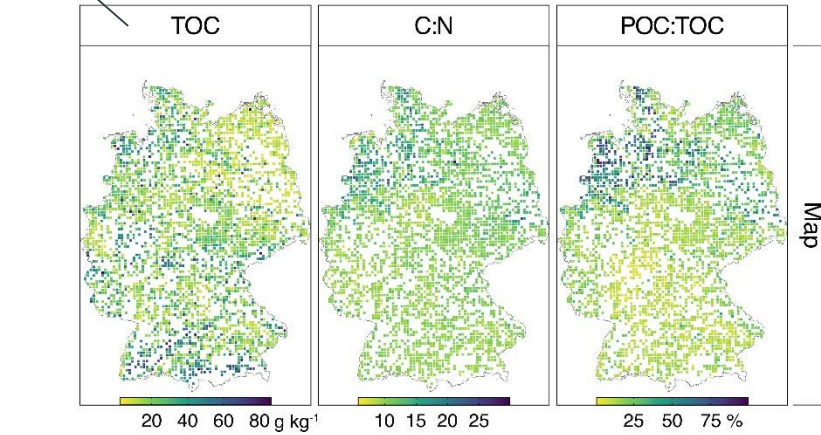
8 x 8 km sampling grid of the German
Agricultural Soil Inventory
(2012-2018)

German Agricultural Soil Inventory (BZE)

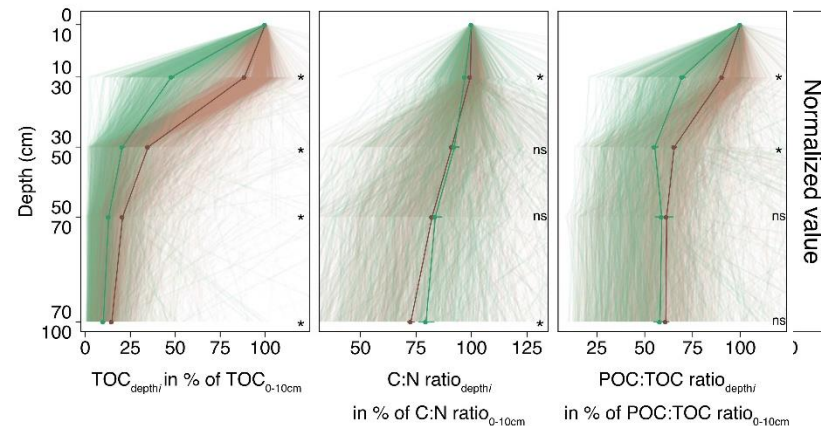
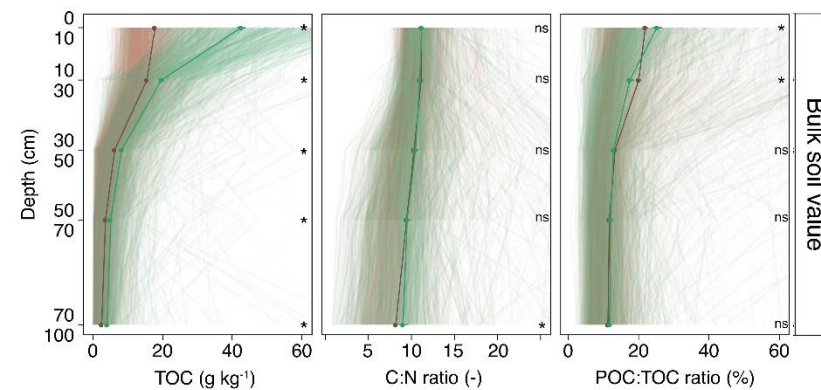
- 3.104 soil profiles
- 16.879 soil samples
- carbon fractions via NIR spectra

Total organic carbon content

Particulate organic carbon
in % of total organic carbon



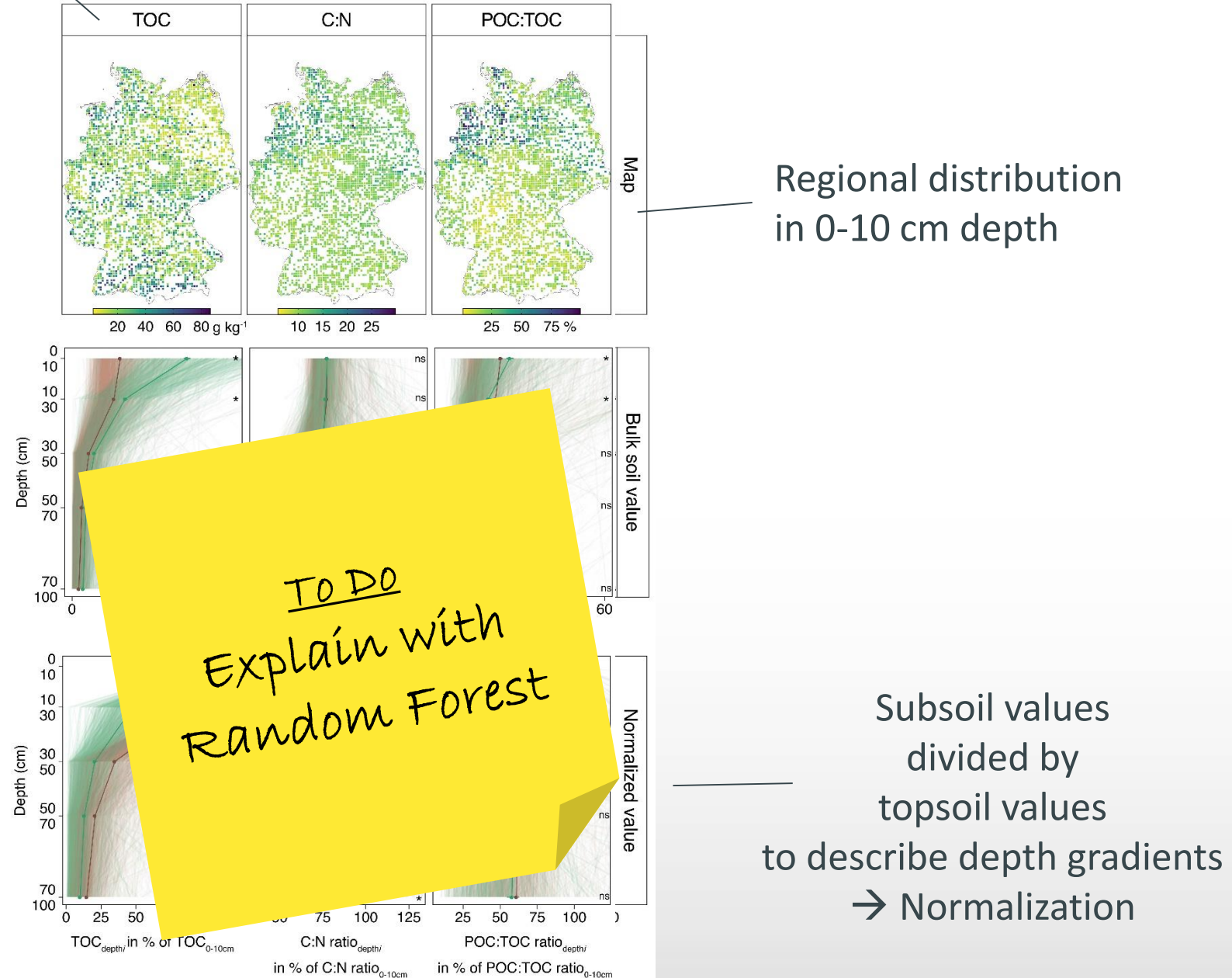
Regional distribution
in 0-10 cm depth

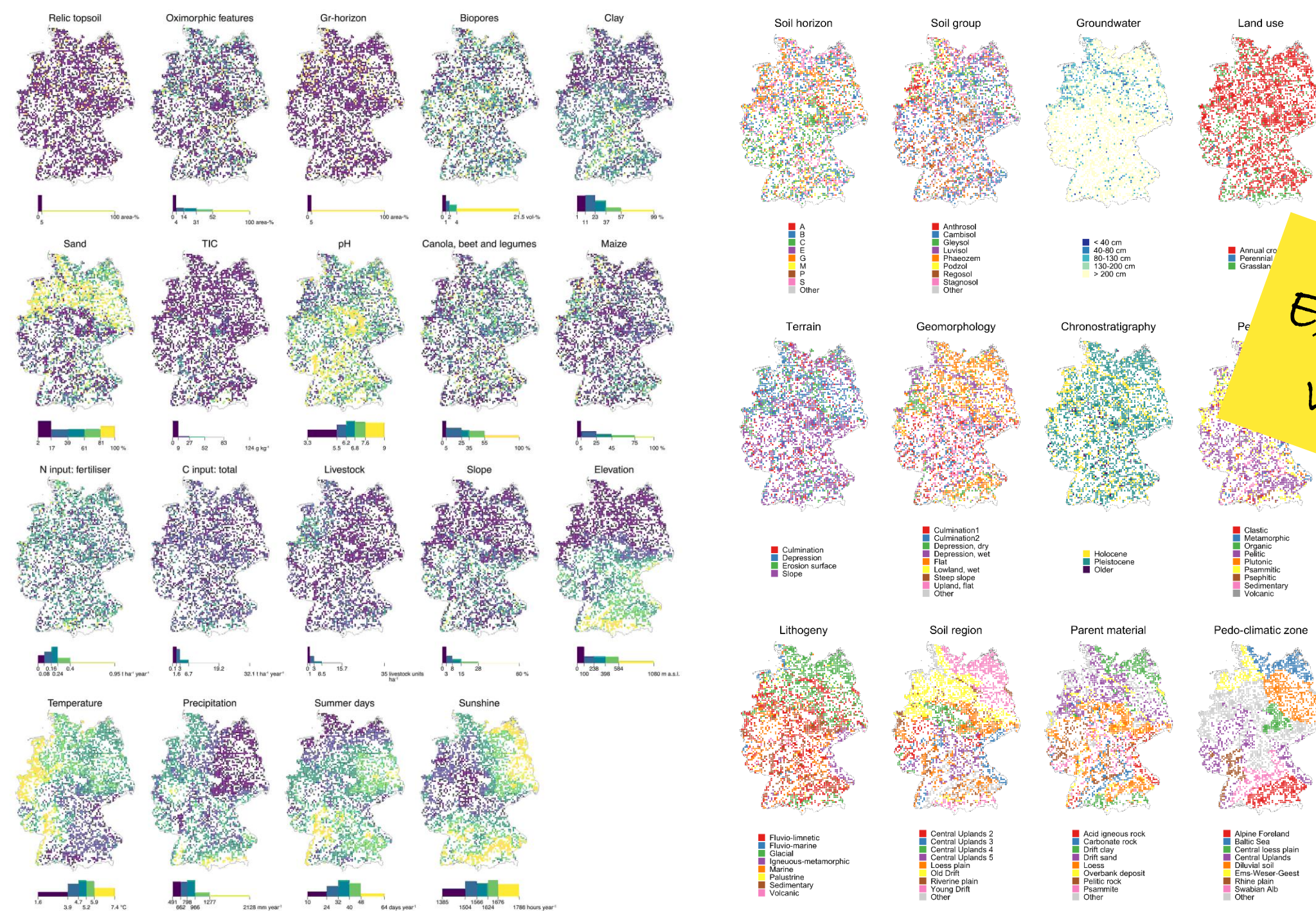


Subsoil values
divided by
topsoil values
to describe depth gradients
→ Normalization

Total organic carbon content

Particulate organic carbon
in % of total organic carbon



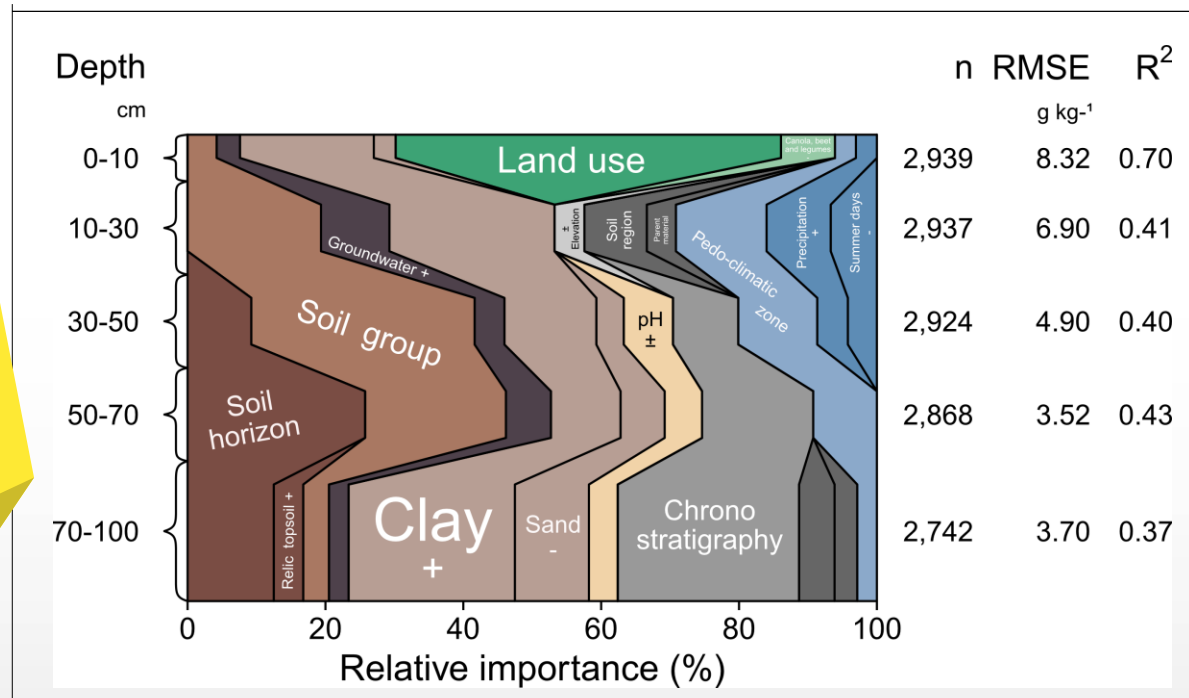


Explanatory variables

Results

Total organic carbon content

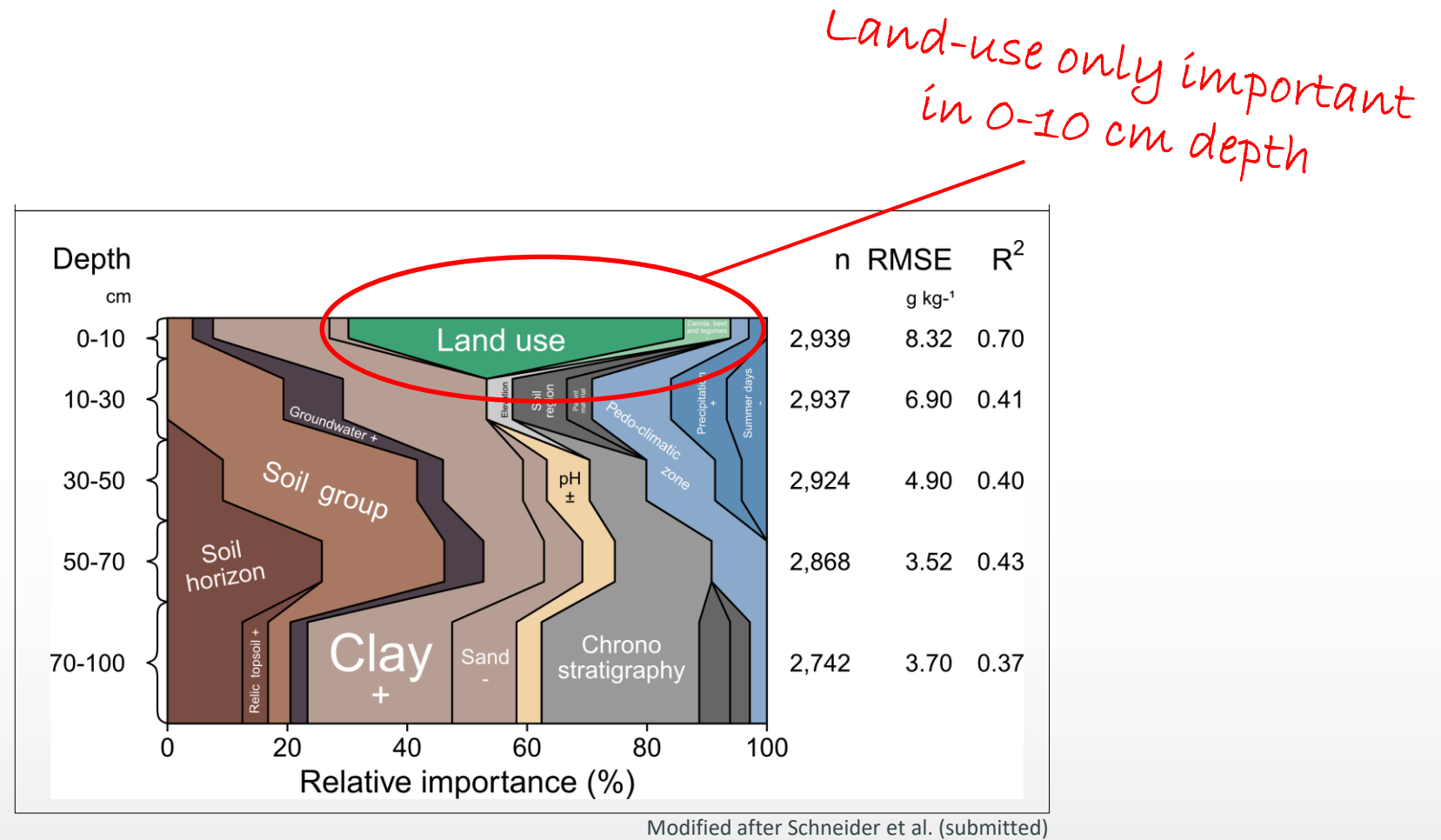
Plot shows the importance of variables in RandomForest models for each depth increment
→ The larger the area the more important...
→ Let's start with TOC...



Modified after Schneider et al. (submitted)

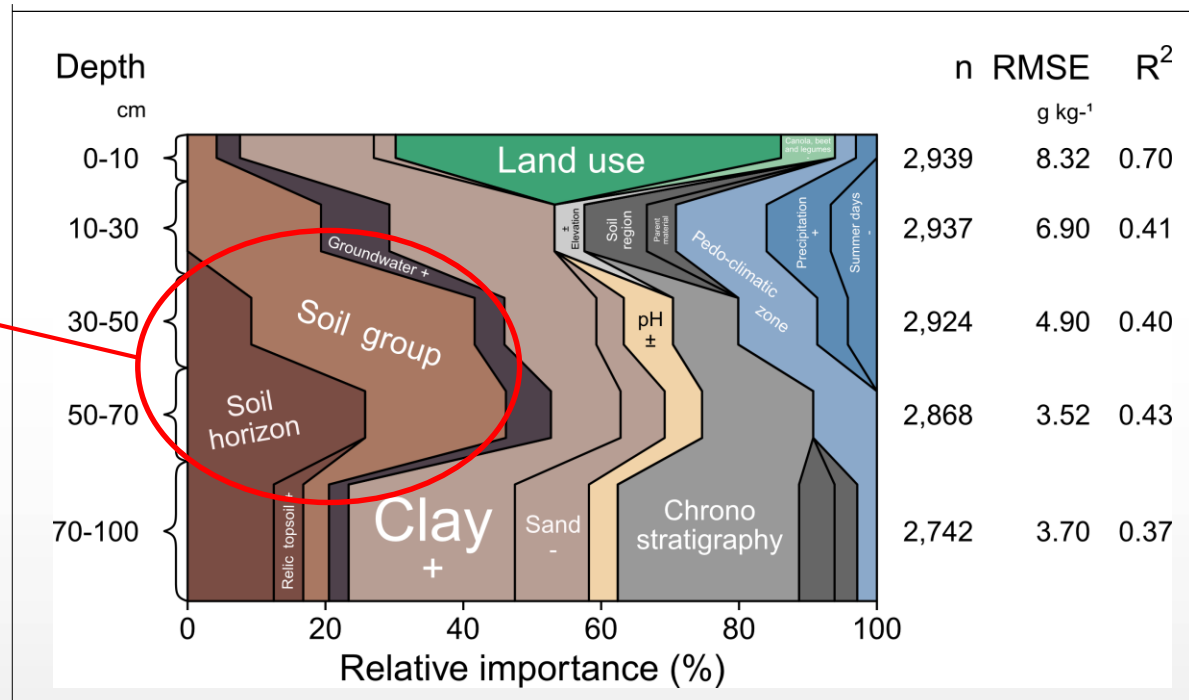
Results

Total organic carbon content



Results

Total organic carbon content

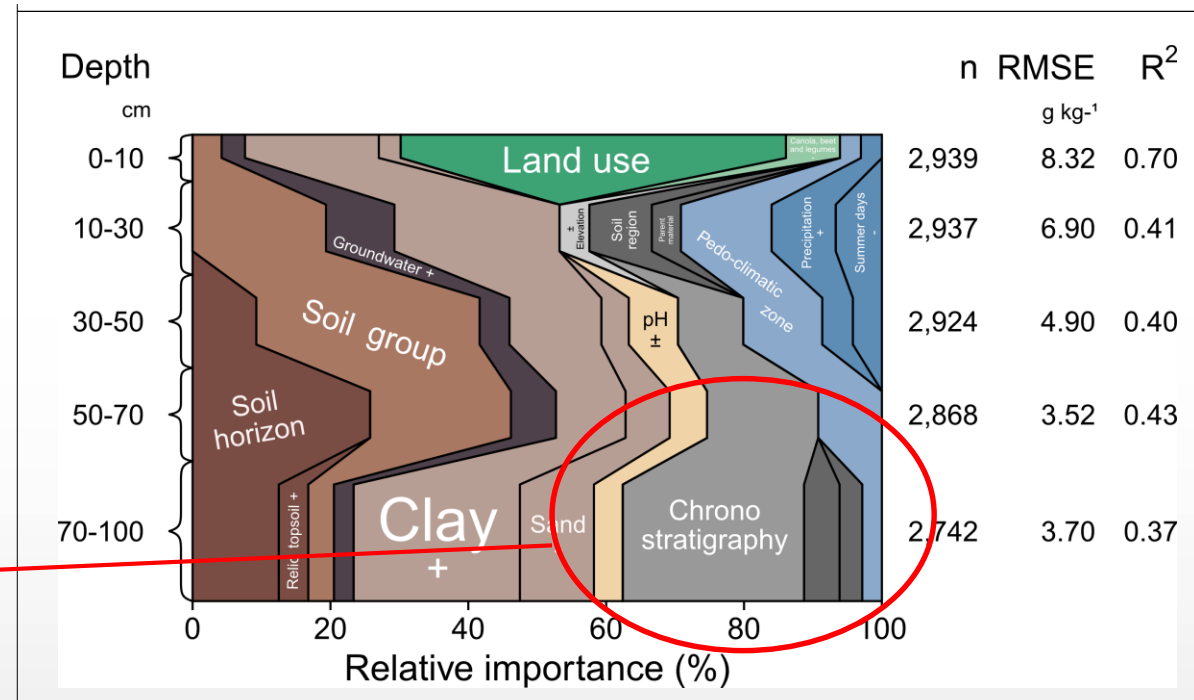


Modified after Schneider et al. (submitted)

Results

Total organic carbon content

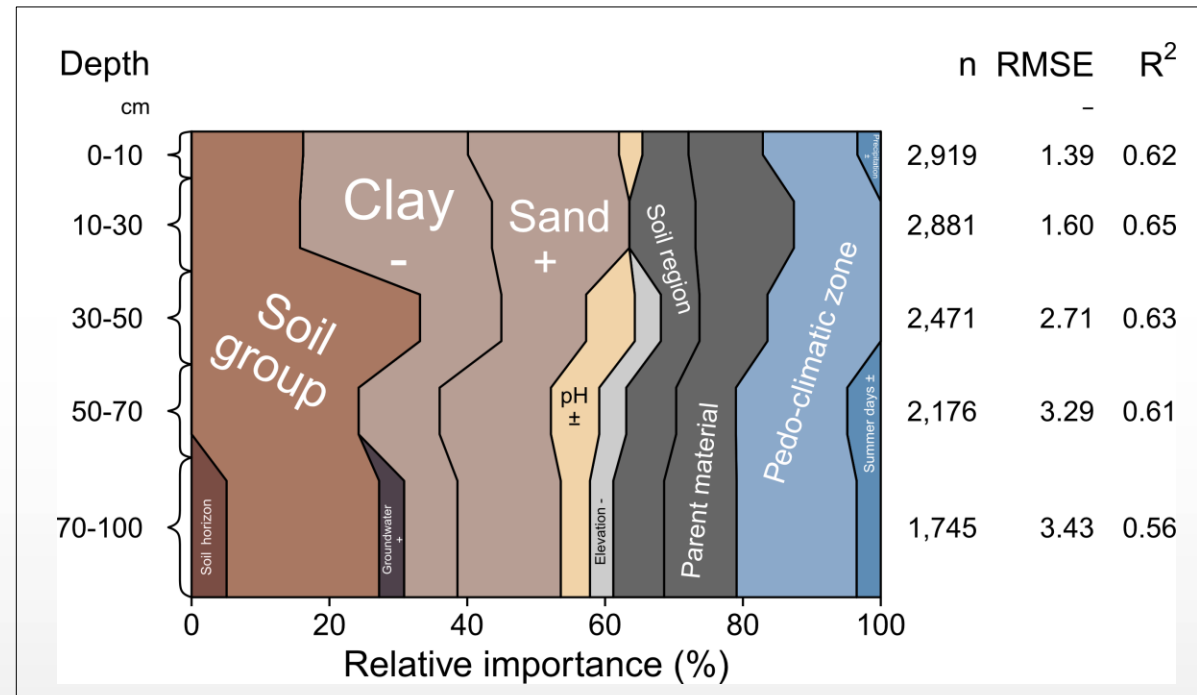
Geology most important
in lower subsoil
→ Allochthonous carbon
from upstream/upslope areas?



Modified after Schneider et al. (submitted)

Results

C:N ratio

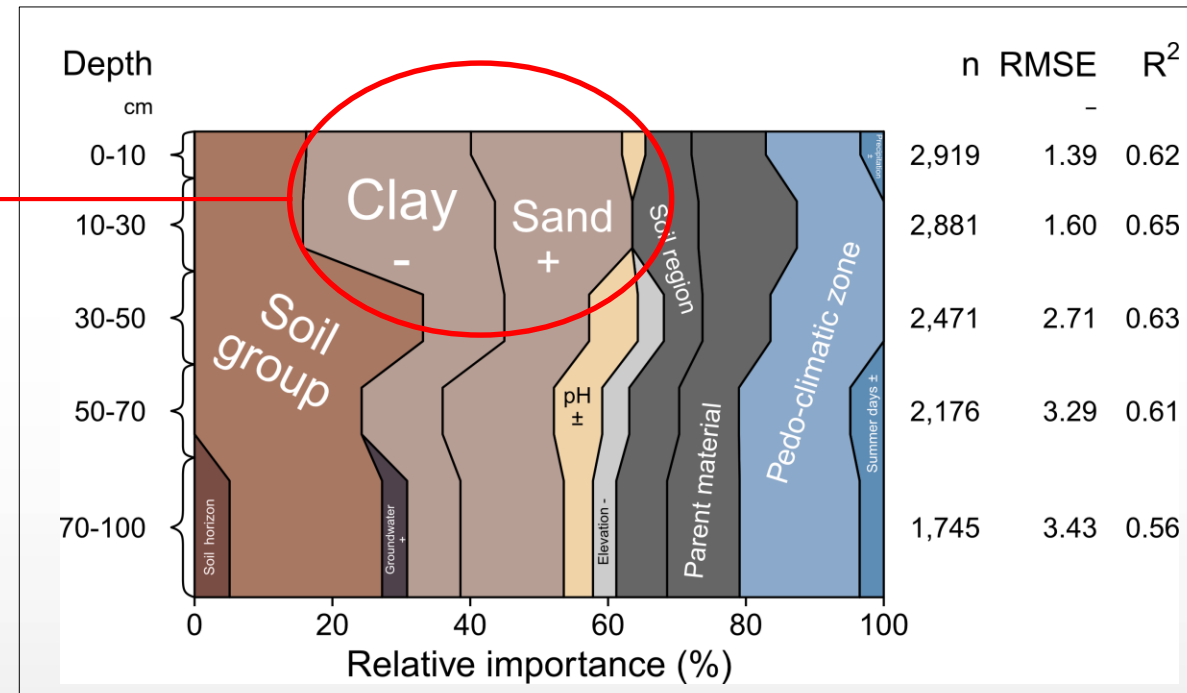


Modified after Schneider et al. (submitted)

Results

C:N ratio

No difference between
copland and grassland ?!

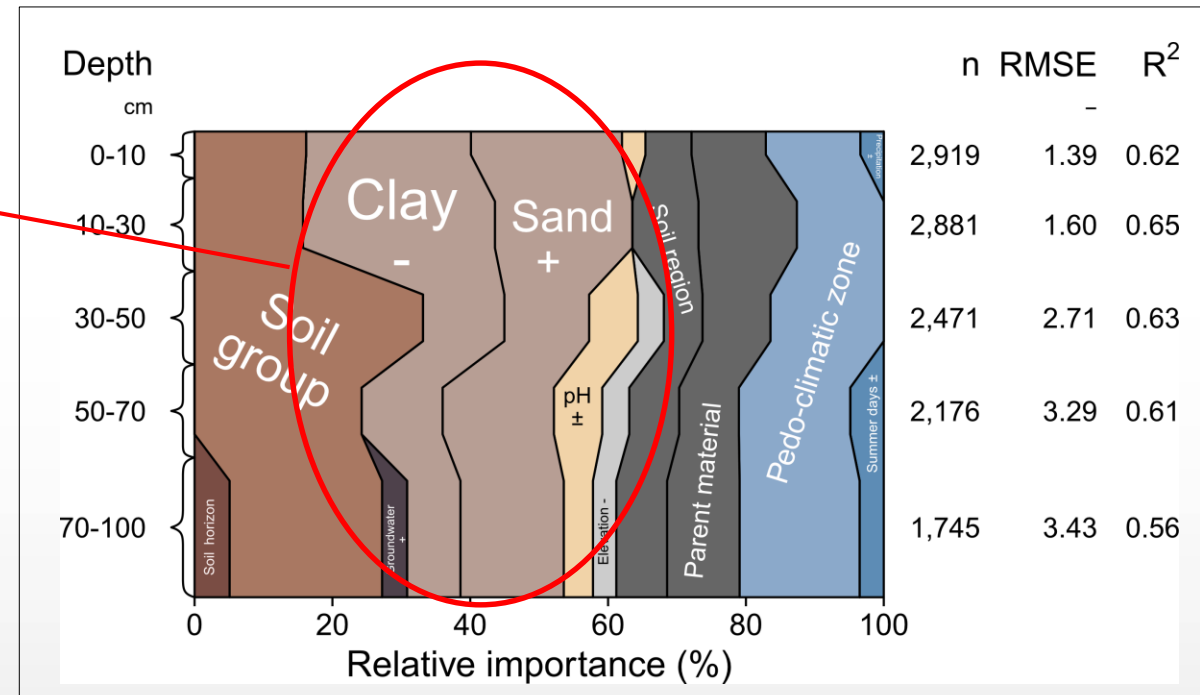


Modified after Schneider et al. (submitted)

Results

C:N ratio

Texture
... key variable

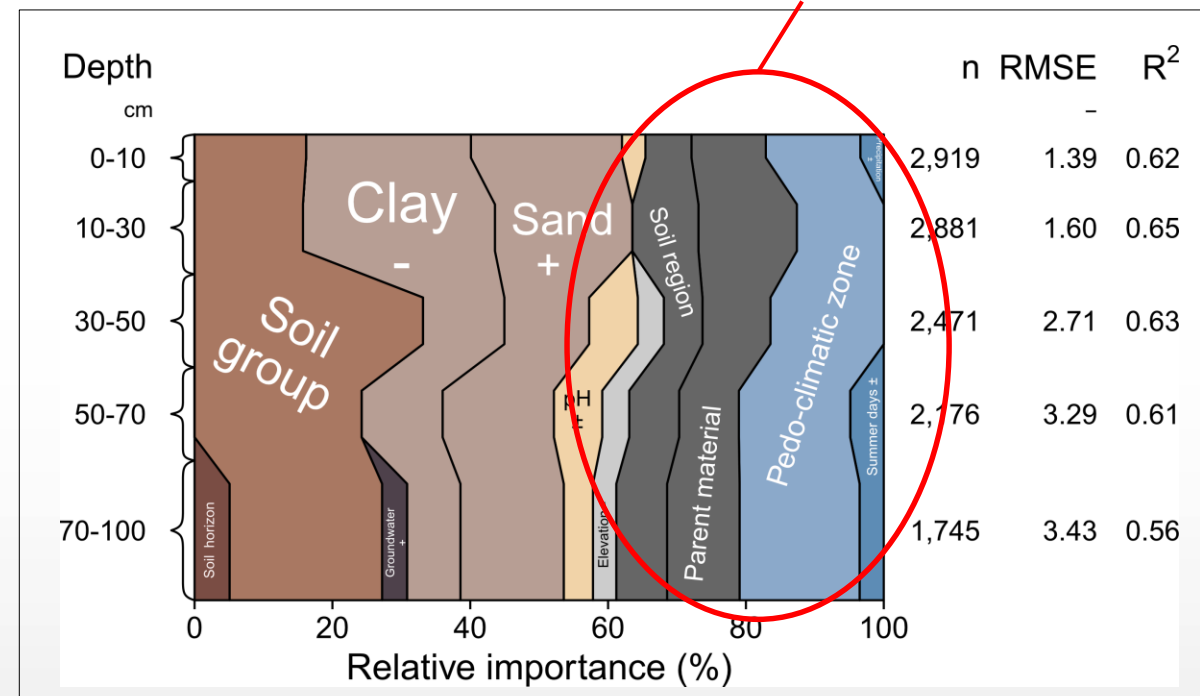


Modified after Schneider et al. (submitted)

Results

C:N ratio

Elevated C:N ratios in north-east Germany
→ Relic organic matter from
historic peatland and heathland



Modified after Schneider et al. (submitted)



Thank you for reading 😊

Contact

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