Storage of organic carbon in soils under native forests in state of Acre, Brazil

Introduction

The uncertainties related to the spatial soil carbon stocks are driven by low density of soil samples. We present C stocks under native forests to test if C stocks differ between Eastern and Western Acre.

Methods

Soil samples were collected in six layers down to 100 cm during the dry season in Eastern and Western Acre, with soils representative for both regions. Soil bulk density (BD) and C was determined and accumulated C stocks (0-100 cm) were calculated.

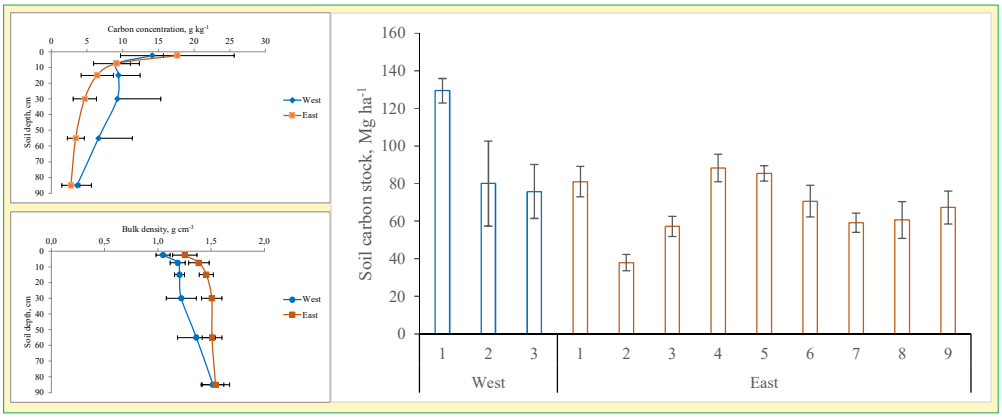
Results and discussion

Highlights

Mean soil carbon stocks in native forests of Acre are 41% higher in the west than to the east.

Average carbon concentration decreased with depth, from 15.9 ± 2.5 g kg^{-1} at the soil surface to 3.2 ± 0.6 g kg^{-1} in the subsoil.

Soil bulk density increased with depth, from 1.15 ± 0.14 g cm^{-3} at the soil surface to 1.53 ± 0.02 g cm^{-3} in the subsoil.



Conclusion

Although soil forest C stocks in the west are higher than to the east, accumulated C stocks were not significantly different across state of Acre. This indicates a great variability in soil C stocks in Acre, and associated that more forest soils need to be collected to reduce uncertainties.

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