TropSOC Database

2.1.11. Forest – Vegetation – Root productivity

When using these data, please cite the database and the key publication in ESSD:

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Introduction

The dataset comprises a unique plot identifier and a subplot ID followed by 6 variables that provide data regarding root productivity at the plot and subplot level for TropSOC's forest plots. Missing values are indicated by -9999.

Data structure

No.	Variable	Explanation	Unit
1	plotID	unique identifier of each plot and point where data were collected	-
2	subplotID	alphabetic letter representing each subplot within a plot	-
3	instal	installation date of ingrowth nets	dd.mm.yyyy
4	harvest	harvest date of ingrowth nets	dd.mm.yyyy
5	interval	period and length for root growth in each net	dd
6	root_bm_1	fine root (< 2 mm) production	g m^{-2}
7	root_bm_2	fine root (< 2 mm) production	g m^{-2} day^{-1}
8	comment	specific comments	

Methods

Fine root net primary productivity was assessed using the ingrowth net method following Ohashi et al. (2016). Two net sheets (mesh Ø 2 mm and net size 20 x 10 cm) were installed per subplot in a regular pattern with a distance of approximately 1 m between the two nets (for details regarding plots and plot design see *2_forest.pdf*). Each net was vertically inserted in the top 20 cm of soil starting from the surface of the mineral soil layer. Nets were sampled every three months after installation and seasonally four times a year, from September 2018 to December 2019. Data is provided as g m^{-2} and g m^{-2} day^{-1} of total fine root production per plot for each assessment period. Nets were removed from soil by first making slits of 3cm on both sides of the net using a spade. Next, a 10 cm wide, 6 cm thick and 20 cm deep soil block was collected with the individual net inside of the block. The two nets from each subplot were then packed into polyethylene plastic bags. In each subplot, harvested nets were replaced with new ones for the next season in an undisturbed area of soil as close as possible to the

previous net positions. In the laboratory, we carefully removed soil surrounding the nets using a wooden brush to avoid damage to roots. Fine roots (< 2 mm) that had grown through the net sheets were collected and carefully washed to remove any remaining soil material, oven-dried at 70 °C for 72 hours and weighed (dry weight). Finally, all root biomass collected through this approach was stored for further chemical analyses and aggregated at the plot level, keeping seasons separated.

Acknowledgment

References

Ohashi, M., Nakano, A., Hirano, Y., Noguchi, K., Ikeno, H., Fukae, R., Yamase, K., Makita, N., and Finér, L.: Applicability of the net sheet method for estimating fine root production in forest ecosystems. Trees Struct. Funct., 30, 571–578, 2016.