Phd scripts book

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1 PhD Scripts Book

PhD Scripts Book

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2 Overview

This book This book brings together the scripts developed within the PhD project "Evaluation of above-ground carbon dynamics in Sustainable Forest Management in the Amazon: providing support to Brazil's climate commitments", carried out by Gustavo Bediaga in the Graduate Program in Ecology at the University of Brasília.

The project is supervised by Dr. Mercedes Bustamante and developed in partnership with CIRAD, with the collaboration of researchers Plinio Sist, Sylvain Schmmit and Géraldine Derroire.

The scripts address the following topics:

- Forest structure;

- LiDAR-derived metrics;

- Wood density databases;

- Biomass estimation.

All scripts were written in RStudio 2025.09.2+418 as Quarto files, and were subsequently rendered into the HTML documents available here.

3 R Scripts

3.1 Pilot script to extract tree height

Extraction of tree height from LiDAR and field data within an APU.

Open script

3.2 Script to extract tree height from all APUs

Extraction of tree height from LiDAR and field data across all APUs.

Open script

3.3 Wood density databases

Comparison of the effect of different wood density databases on biomass estimates.

Open script

3.4 Biomass estimation

Aboveground biomass estimation using allometric equations and different height estimations.

Open script

3.5 Modelling tree height as a function of diameter

Modeling tree height using forest inventory data from Jamari.

Open script

References