R Functions for Tree Stem Cubature

About R4Mcubage

The **R** package **R4Mcubage** is a set of functions (**S3** language) to treat data from the measurement of the stem/branch sections of trees. It deals with excurrent and decurrent trees and can compute the tree wood containt in terms of following stem volume:

- total volume;
- merchantable volume for a given set of minimum merchantable stem diameters;
- merchantable volume for a given set of merchantable heights; and
- merchantable volume for a given set of combinantions of log diameter-length.

For excurrent trees, it also interpolates stem measurements (for individual stems) based on the relationship of diameter-height along the stem to generate:

- the stem diameter for a given height along the stem (absolute or relative to tree's total height); and
- the height along the stem for a given diameter (absolute or relative to tree's DBH).

R4Mcubage computes the merchantable volume ratio for:

- excurrent trees as the cumulative volume along the stem as function of diameter-height; and
- decurrent trees as the cumulative volume for the whole stem as a function of diameter.

Two functions for plotting make easy to plot:

- stem profile (excurrent trees) as absolute values of diameter-height or as taper equation data;
- branch profile (decurrent trees) as abolute values of diameter-height;
- merchantable volume ratio as function of diameter (excurrent/decurrent) or as function of height (excurrent only).

A interactive argument of the function for profile plotting allows the visual inspection of individual stems one-by-one for checking problematic data.

R4Mcubage's Objective

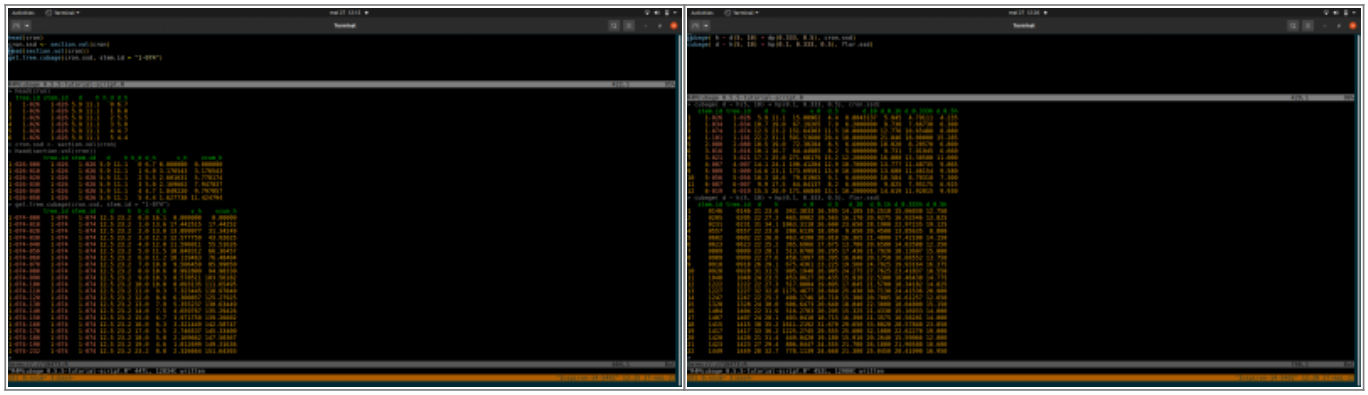
The objective of **R4Mcubage** is to make easy the computation of tree stem measurements in order to obtain data tables needed for the Forest Biometrics modelling of the trees. Particularly, the package's goal is to turn raw field measurements into proper data tables of

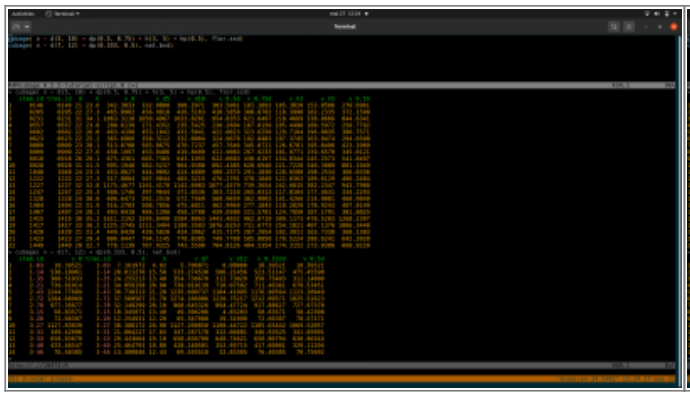
- any diameter and/or height along the stem;
- stem volume for given diameters and/or heights along the stem; and
- volume and number of logs for given combinations of log diameter-length.

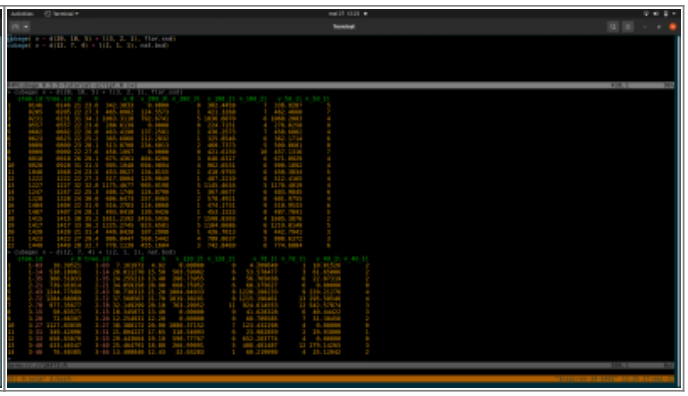
Which are the basic data needed for fitting models of:

- volume equations (total and merchantable);
- taper equations; and
- merchantable volume ratio index equations.

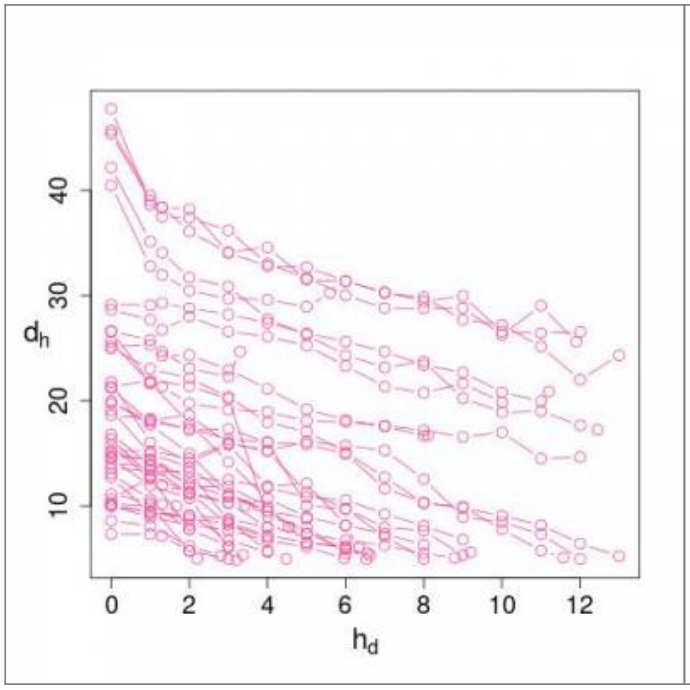
Screen Shots

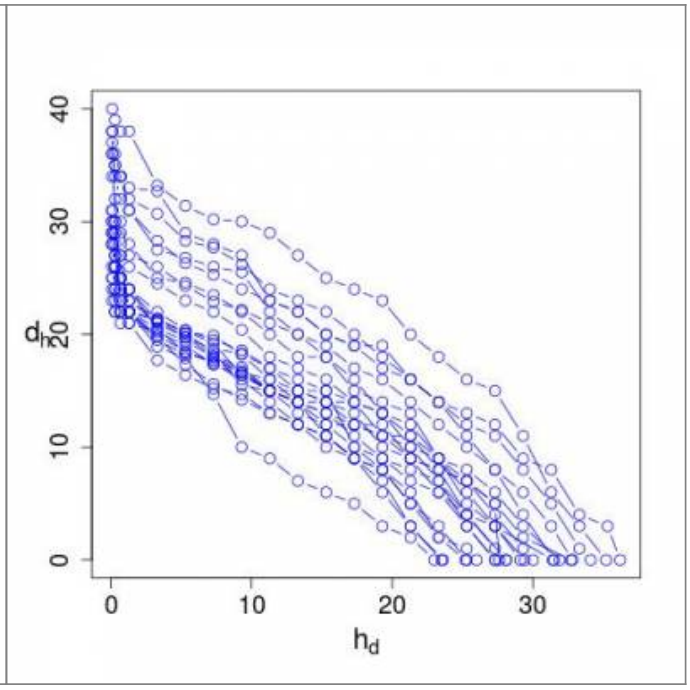


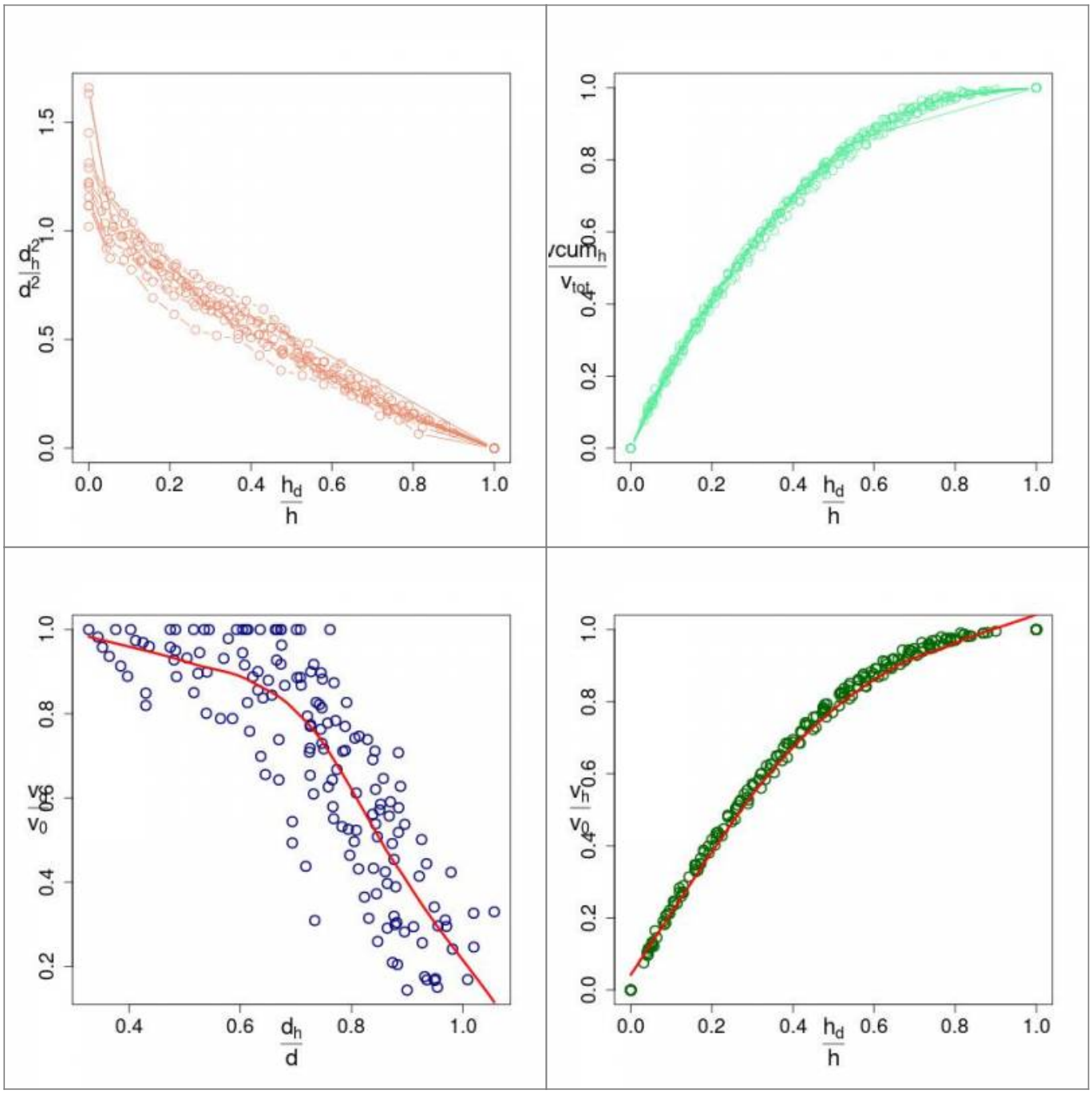




Example Plots







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- ***Pacote em desenvolvimento*** as a **.tar.gz** file.
- Tutorial PDF.

Contact

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