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Interactive comment on "ChinAllomeTree 1.0: China's normalized tree biomass equation dataset" *by* Yunjian Luo et al.

Anonymous Referee #1

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General comments

The present study describes a dataset with tree allometric equations for China, which is - as the authors state - up-to-date missing. The dataset comprises an extensive amount of allometric equations, gathered from literature between 1978 and 2013. The authors describe in detail, how they dealt with missing data and how they rate the quality of the applicable range. The dataset itself is available in Pangaea as Excel-file with two data sheets. However, I have some concerns on the manuscript and especially the dataset, which I will explain in the following.

MANUSCRIPT

Specific comments

- The authors state, that allometric equations for China are missing (e.g. page 3, line1-2). However, the cited reference (Henry et al. 2015) uses data from 2014. In a quick internet search, I found the http://www.globallometree.org database containing more than 1000 allometric equations for China. Also the name of the new dataset (ChinAllomeTree) is quite near to that of the global database (GlobAllomeTree). Please explain in the manuscript and work out the differences. Will this new collection be introduced into GlobAllomeTree?

- Page 3, line 3-4. Please provide a citation.

- Page 9, line 3-4. "As it is often the case" – I would just skip that part of the sentence, as it is rather discussion than result

- Table 1. (i) Stand density - Unclear to me, if it refers to the whole number of trees/ha or only those given in "Tree species (group)". (ii) Biomass component - How can a biomass component (after all it is said to be a string) be given in units of kilogram? I would say it's a unitless name.

- Table 3. (i) It might be sufficient to put it in the Appendix? (ii) Please make two sentences out of the first one in the caption. I further do not understand the second part of the sentence ("..., and mixed species in Column 'Species name' does two or more tree species that equations are developed for. "). Please rephrase (iii) I would appreciate to have the authority after the each species name.

- Figure 1a. (i) The figure does not work when printed in greyscale (dots and height classes). (ii) In the coloured version, red dots on green background are a potential problem for colour-blind people. (iii) I do not understand how the map and the small 'overview' in the lower right belong together. What is the small rectangle in the lower right within that 'overview'? It might be helpful to provide Longitude and Latitude also for the 'overview' and to describe its function in the figure caption.

Technical corrections

- Write rather “Tree-biomass equations” or “Tree-allometric equations” than “The tree biomass equation” or “The tree allometric equation”, as there is not only one equation, but several different ones.

- Replace $\sim$ with –, as – is the usual from-to sign, while $\sim$ is rather used for approximations

- Page 1, line 12 and page 2, line 4. “spatio-temporal scales” or “spatial and temporal scales”

- Page 7, line 13. Shift “(Fig. 2)” to the end of the sentence.

- Page 9, line 5. ranges

- Is Figure 2 really necessary? I think it is sufficient, that the values are presented in the text

- Table 2, I. “For former two forms. . ..” – change to “For texts and tables. . .”

- Table 3, header: “Number of biomass equations” instead of “The number. . .”

- Table 3, caption: “column” instead of “Column”

DATASET

Specific comments

Please provide explanations of the dataset (like abbreviations) on Pangaea or within the Excel-file. The dataset should be understandable without having to read the paper, which is – at least at the moment – not linked on the Pangaea page.

In Table 1 of the manuscript, it is described how parameters like e.g. Latitude, Altitude or MAT are retrieved (from original studies or other sources). It would be helpful to add the information on data-origin within the “General” sheet as a new column to give the user the ability to rate its quality.

Sheet “General”

- What is the difference between dominant species and tree species? What are MAT, MAP? I know it is described in the manuscript, but it should be clear from the dataset as well.

- I am not sure about how equations were pooled or separated and stumbled over this example: ID 268, Li et al. 2013a, has a stand age from 16 to 68 years, while in the original publication, values are given separately per age class. ID 286-289, Li et al. 2010a, give different equations for different age classes. Unfortunately, the original publication is given in Chinese and I thus cannot have a look to see, if I understand the different splitting of age classes in the dataset.

- A further question concerning stand age: ID 268, Li et al. 2013a, has a stand age from 16 to 68 years, the publication gives values for stands of 16, 35, 50 and 68 years. Your dataset states “16$\sim$68” as stand age. In other cases, e.g. ID 508, Wang and Shi 1990, stand age is given as “6, 12, 22, 40”. What is the difference? Unfortunately, the original publication of Wang and Shi is in Chinese and I thus cannot have a look to see, if I would understand the difference.

Sheet “Equation”

- What do the variables and coefficients (W, D, H, a, b, c, d) stand for? What are Methods and applicable ranges? Again, I know it is described in the manuscript, but it should be clear from the dataset as well.

- Applicable ranges Height and Diameter: Why are they sometimes “/”, sometimes “na”? What is the difference?

- It is to some part impractical to search for equations belonging to a specific ID as they are given e.g. as 5911$\sim$5918. It would be helpful, to have the general ID as additional column in the Equation-sheet.

Technical corrections

- Avoid merging cells as these might be unreadable for other programs.

- Would it be possible to provide the dataset as .txt or .csv file in general?

Sheet “General”

- Replace “∼” with “to”

- Provide complete citations (Appendix B) within or together with the dataset

- Please avoid formulas within the cells, as these can easily and unwittingly be changed by clicking in the cell (e.g. clicking in the first cell of the column “Equations included” gives ’=Equation!B3&"∼"&Equation!B14’). This should be changed into plain text.

Sheet “Equation”

- Formulas: saving the dataset as .csv or .txt to import it into other programs results in e.g. W=aÂůDb. It might be better to write W=aÂůDˆb, which is accepted as power-function in a number of programming languages

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