Biogeosciences
Discussions

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Interactive comment on "R-Package `BIOdry`: DendroClimatic Modeling from Multilevel Ecological Data Series" *by* Wilson Lara et al.

Anonymous Referee #2

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The present study introduces new R-package which can be useful in tree-ring research, but also in other time-series analyses. The manuscript is clearly written and contains enough detail to follow the analytical protocol employed. Package is already available at CRAN. However, I feel that such type of manuscript should be mostly dedicated to the description of individual functions and how user can modify this and what will be the output. However, this paper is far from clear cookbook for potential package user, which I believe is really pity. There is a lot of space dedicated to explanation of mathematical processes, but this should be rather in the Appendix (honestly, most of the readers and potential users will not care about it, it is your responsibility that used methods are correct, with this description you will not increase the understanding for people which simply do not understand these methods, just to want to use them as a tool without deep knowledge how it works). I also found some errors in the script,

which is really something what I would not expect from the manuscript describing the package. There are some Figures in the manuscript, which I suppose are produced by some function of the package. However, this is really not clear and it is only my opinion. I would expect that there will be clear line of script shown in manuscript, as basically all packages published in dendrochronology did, and this line will be accompanied by short description what it is doing and if there is a figure produced, then it should be explicitly written. Authors mention that "the BIOdry package can interact with other dendrochronological libraries in R, including dplR, bootRes, and measuRing", however, they show only one example of communication of dplR package and some connection with other packages is not shown at all. In addition, even this one example is actually quite rather showing that these packages are not able to communicate, as the format of data is different and I do not understand why it is not unified or there is not some function for transformation to commonly used and already commonly used packages (this is actually something what will just lead to the rare use of BIOdry by people which are more used to use R and adjust data; this is really pity as the package has potential to be widely used).

On the base of this, I recommend to change the structure of the paper and write the paper as manual (see papers describing dplR, detrendeR, TRADER, pointRes and basically all other papers, including your paper describing measuRing). There is always some clear example, which is really missing in your manuscript. Basically, even from the abstract is not clear what is the main purpose of the package. You use multilevel ecological data series, but it is hard to recognize what does it mean. I am really sorry to be so critical, especial as I know that there was for sure a lot of work behind whole package and also manuscript writing, but I feel that in the current stage is not manuscript useful for users and I think it should be the main purpose of this manuscript. I am sure that it will be not so complicated to write the manuscript in easier way and most of the detail precise description of processes behind functions, put to the Appendix. Anyway, I am looking forward to use this package and hope that I will find paper, which will really provide an information which I would like to see as user of package, not the description

of various complicated calculation, which most of the users do not care.

Some more specific comments

1. I cannot agree with second sentence in introduction (Diverse methods and software for measuring Tree Rings in Wood (TRW), analyzing climate data, and compiling statistics are scattered throughout the literature). First of all, what authors mean by "measuring tree rings in wood" (it is already in Abstract)? If you mean for measuring tree-ring width, write it correctly (because this is how abbreviation TRW is always used and, according my opinion, you use it in this meaning in the rest of the manuscript). Secondly, sentence is simply not true as there is variety of software's and literature describing these methods and I do not see point for this criticism. There is a lot of dendrochronological books, which describe in one place what you told that it is missing (e.g. Speer JH (2010) Fundamentals of Tree-ring Research, University of Arizona Press; but plenty of others). There is also a lot of papers which describe the software separately. Simply, there is no reason for this sentence.

2. your package is partly working with another package, bootRes (not clear how, but you wrote it). I think it will be much better if you will make the connection with newer package (basically update of bootRes), treeclim; Zang, C., & Biondi, F. (2015). treeclim: an R package for the numerical calibration of proxy-climate relationships. Ecography, 38(4), 431-436.

3. On Figure 1 is a lot of abbreviations, which are not explained at all, this should be changed. 4. in the R-code 1, you have a mistake, there is one more bracket, should be like this: MoreArgs_td <- list(z = 2003, mp = c(1,1), un = c('mm','cm'))

5. Actually there is an error also in other point:

Error in lme.formula(fixed = log(x) $\sim$ log(csx) + log(time), data = fixed, :

nlminb problem, convergence error code = 1

message = singular convergence (7)

<div align="center">C3</div>

```
diameters <- modelFrame(rd = Prings05, fn = fn_td,

lv = lv_td,

MoreArgs = MoreArgs_td,

y = Pradii03,

form = 'tdForm',

log.t = TRUE,

method = 'REML')
```

6. I think you should simply wrote in the introduction, something like: There are already available packages for basic tree-ring width manipulation (dplR; Bunn 2008), investigation of dendroclimatic relationship (treeclim or bootRes; Zang and Biondi 2013, 2015) as well as assessment of dendroecological processes (TRADER, Altman et al. 2014), while the com plex tool for connection and deep investigation of Multilevel Ecological Data Series (MEDS) is still missing. Thus, you will put your package to the broader content.

7. R-code 2 does not work if I will start to run it, simply because there are some missing steps before and data used in this first step are not available.

References

Altman J, Fibich P, Dolezal J, Aakala T (2014) TRADER: a package for Tree Ring Analysis of Disturbance Events in R. Dendrochronologia, 32, 107-112.

Bunn, A.G., 2008. A dendrochronology program library in R (dplR). Dendrochronologia 26, 115–124. Zang, C., Biondi, F., 2013. Dendroclimatic calibration in R: the bootRes package for response and correlation function analysis. Dendrochronologia 31, 68–74.

Zang, C., & Biondi, F. (2015). treeclim: an R package for the numerical calibration of proxy-climate relationships. Ecography, 38(4), 431-436.

<div align="center">C4</div>