Biogeosciences

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Discussions

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

Wilson Lara et al.

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We would like to thank the reviewer for careful and thorough reading of this manuscript and for the thoughtful comments and constructive suggestions, which helped us to improve the quality of this manuscript. Our response follows (the reviewer's comments are in italics).

Issue #1 This paper by Lara et al. is currently somewhat of an chimaera between a software manual and methods paper for a special case of mixed effects modelling. Unfortunately, both parts are unsatisfactory, which makes a review rather tough.

Judging from its title, this paper is intended to introduce a software package to the community (like the papers introducing dplR, TRADER, pointRes, treeclim, etc.). This means, this review should not be about the package's functionality or the quality of the

code, but rather about the presentation of the package. The functionality and statistical reasoning behind it is described elsewhere (Lara et al. 2013 Agricultural and Forest Meteorology) and its popularity and benefit can thus be assessed independently.

The functions presented with the package are more on the complex side of things, especially since they overload already complex functionality (nlme-functions) with even more complexity and paradigms. This calls for a more detailed, example-driven step-by-step guide, where references are made to the appropriate places in the methodological literature, but where the reader is not overwhelmed by statistical reasoning. In this, I very much agree with Reviewer #2.

R 2.1: As a response to the reviewer's comments we have focused the paper in a step-by- step guide while the in-package routines were explained in the appendix.

Issue #2 In contrast to Reviewer #2, I could run all example code; but still, I was left somewhat puzzled about what the code actually tries to do.

R 2.2: The new line code example clearly explains formulation of arguments, inputs and outputs. The R-code has been tested in machines with Linux, Mackintosh, and Windows.

Issue #3 Recommendation: use ecological storylines to tell a story with data, and explain your package alongside. For example, as a reader, the sentence "For instance, form = 'lmeForm' can be implemented to detrend normalized aridity indexes." is most probably not helpful when you do not give an example why would want to do that in the first place.

R 2.3: The recommendation of the reviewer is an excellent idea. A storyline figure to illustrate principal objectives and steps of the example has been included in the manuscript.

Also, as the authors claim their package to be usable for MEDS in general, an application example using other data than dendro data would be convincing.

R 2.3: Considering the algorithm's complexity, we propose to focus the paper on one specific example to model dendroclimatic data and to avoid including other ecological implementations.

Issue #4 A few more specific things to consider:- TRW is usually not "Tree Rings in Wood" but tree-ring width

R 2.4: We agree with the reviewer that TRW should be changed to tree-ring width.

Issue #5 the authors' concept of detrending is unclear and possibly varying throughout the manuscript

R 2.5: We can better explain in the manuscript that the detrending process means subtraction of trends in dendroclimatic data by fitting lme regression.

Issue #6 stable isotopes are more of a *tool* for certain research areas in dendro

R 2.6: We could be more specific with the concept of stable isotopes as a tool for certain areas in dendrochronology.

Issue #7 use lazy data (see Writing R Extensions or ?utils::data)

R 2.7: We are going to use lazy data for package implementation. This will make the R session start up faster and use less virtual memory.

Issue #8 don't recommend using 'require()'

R 2.8: We agree with the reviewer. We will use library() instead of require() to load the package into the R environment.