

## ***Interactive comment on “ENSO flavors in a tree-ring $\delta^{18}\text{O}$ record of *Tectona grandis* from Indonesia” by K. Schollaen et al.***

### **Anonymous Referee #1**

Received and published: 21 January 2015

**General Comments** This manuscript addresses a relevant scientific question which falls in the scope of CP. None of the concepts, ideas, tools or data can be considered novel, but this research presents the first application of the type of data to the question posed. The conclusions present important information about the El Niño variants. Some of the methods are not specified and a few assumptions may be questionable. I believe the results support the interpretations and conclusions. I believe the experiments and calculations are reproducible. Proper credit is given to related work with clear indications about the origin of research done in this study. The title is adequate as it is. The abstract is very concise and complete. The presentation of the research is easy to follow and clear. There are a few cases where the English is either imprecise or incorrect. The mathematics is adequate. All parts of the paper should be kept as they are. The references are adequate. No supplemental material was provided with this manuscript.

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### **Specific Comments**

Lines 12-13 p 3969. I am undecided about the use of alpha-cellulose versus resin-extracted wood, not so much because of possible exchange of carbonyl oxygen in some hemi-celluloses, but because of the potential for interannual changes in the proportions of lignin, alpha-cellulose and hemi-cellulose, all of which are recognized to have different  $\delta^{18}\text{O}$  values. If the proportions do change interannually, then the climate/isotope signal will probably be dampened, though I can imagine scenarios where the signal would actually be spuriously enhanced.

Line 25 p 3973 to line 3 p 3974. It's also possible for the use of stored starch to significantly modify a  $\delta^{18}\text{O}$  signal, smoothing the interannual pattern. Did you assess the  $\delta^{18}\text{O}$  time series for autocorrelation prior to your analyses?

Lines 13-15 p 3974 Can you be certain land use change was not a factor in the drop in correlation mentioned here?

### **Technical Comments**

Lines 12-13 p 3966. What does “highest” mean in this context? Is it the longest amount of time represented, the strength of the convection (e.g. punching through the tropopause), or something else. I realize that the meaning is explained in D'Arrigo et al., 2006, but the word “highest” is imprecise.

Line 15 p 4966. Perhaps you mean “essential to ‘the functioning of’ the global climate system”, or something similar.

Line 16 p 3967. change “in” to “about”

Line 2 p 3969. change “is” to “has been”

Lines 12-13 p 3969. Schollaen et al. (2013) makes it clear that resin-extracted wood, not alpha cellulose, or holo-cellulose was used in this analysis. In that paper you cite studies showing that further extraction is apparently not necessary, but you need to

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note in this study that “resin-extracted wood” was used, so the reader can decide.

Line 13 p 3969. I think this should be “in Schollaen et al. (2013)”, not “in (Schollaen et al., 2013)”, unless CP has different rules.

Lines 18-19 p 3970. It’s not clear from the wording of this sentence if you used the same transform as Ren and Jin (2011), and just extended the transformation back to 1900, or modified the transform in some way. The text in the figure caption for figure 2 is clear about how you used the Ren and Jin (2011) calculation. Reword this sentence to provide the same specific information.

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Interactive comment on Clim. Past Discuss., 10, 3965, 2014.

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