

Interactive comment on “Dendroclimatology in Fennoscandia – from past accomplishments to future potentials” by H. W. Linderholm et al.

Anonymous Referee #2

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General comments:

This manuscript makes a literature review about the past studies relating to tree-rings and climate in Fennoscandia. The literature from Sweden (especially) and Norway and Finland, are reviewed. The literature considers mainly Scots pine, also Norway spruce, and at least one reference is about oaks. The manuscript does not provide new scientific results: the editor can decide whether the absence of new results is acceptable according to journal policies.

Main issues:

The title, in its present form, can be misleading. The cited literature represents an arbitrary collection of papers and no attempt is made to define the schematic borders

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of the literature review. The authors say (page 1442) that “this review is by no means comprehensive; several works have not been included. This is not because of these works being of less importance, but rather a constraint of time and space.” The authors could pay attention to better limit the set of papers they discuss (the constraint of time and space of are not scientific factors to limit their review). The extension of the title could describe the delimiting subtargets of the review.

Included literature is mainly about the climatic signals in tree-rings with additional literature about the accomplished paleoclimate reconstructions (the latter subtopic is naturally well suitable for the species issue). There is literature missing about the standardization issues (these influence the results of every dendroclimatic study, especially reconstructions) and transfer functions (which actually make the reconstructions from tree-rings). The authors define the term dendroclimatology differently in different pages (1416 and 1417). The authors could be more consistent with this and with the limits of the review.

There are several abbreviations that are not explained. At least the following abbreviations should be opened to the reader: PMIP2, ENSO, EW, LW, PDO, MWP, LIA, TRW, CRUTS2.1 in the connection of their first appearance in the text. If they appear only once, it is needless to abbreviate them.

There are several papers in the list of references that has status either “in preparation” or “in review”. What do these statuses indicate? One could ask is it reasonable to cite a paper that is not yet submitted (“in preparation”?) or not yet accepted (“in review”?)?

The final purpose of scientific literature review is that the discussion is to become concentrated into the analytic conclusions. In its present form, the conclusions could be more analytic. The authors could be more aware of this and amend the conclusions.

Detailed comments:

page 1416, line 10: “covering all” – none of the chronologies is not covering all the

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Holocene.

page 1416, line22: “century later” – when, even a decade could help.

page 1417, line 6: do you mean, Mann & Jones ?

page 1417, lines 11-17: low-resolution and low dating accuracy are not the same thing. It seems to be like the authors are mixing these two things here.

page 1418, the chapter is called dendroclimatology, but the term is not defined. However, there are confusing definitions above in the text. The authors should be more consistent.

page 1419, line 4: there should be newer literature, those are 33 year old studies!

page 1419, lines 5-24: could be shortened with no significant loss of crucial information.

page 1420, line 3: dead wood could be house timber, those are not cut into disks! The authors should be more careful in writing.

page 1420, lines 1-20: as written, it makes the things look like the standardization issues are related only to widths. This is not the case, as authors discuss later.

page 1420, line 25: “all the components” – really all of them?

page 1420, line 27: the border from earlywood to latewood is often really far from clear because it is gradual. The authors should explain better the meaning of this sentence.

page 1420, line 27: “thin slices” – the Swedes have discover methods to study the intact cores, so there is no need to use thin slices, see Bergsten et al (2001) Wood Science & Technology 35:435-452.

page 1421, line 20-21: any reference to this?

page 1422, line 1-21: these are really old notes, can the authors provide references?

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page 1423, line 1: Erlandsson adopted the method from American geographer Ellsworth Huntington. Erlansson is citing his book.

page 1423, line 19: did Hustich & Elfvig (1944) remove autocorrelation?

page 1427, line 3-10. the authors could also cite Kirchhefer (2005) 'A discontinuous tree-ring record AD 320-1994 from Dividalen, Norway: inferences on climate and tree-line history'

page 1428, line 18-26: the authors could cite Helama et al. (2009) *Geology* 37, 175-178.

page 1429, line 20: the same was recently shows by Helama et al. (2009) *Plant and Soil* 319, 163-174.

page 1432, line 18: should this be Eronen & Hyvärinen?

page 1432, line 27: this is not the longest, this status now belongs to chronology by Nicolussi et al. (2009) *The Holocene* (in press).

page 1433, line 10: “periodical” Do the authors mean “transient” ?

page 1433, line 14: “complacent” is likely not proper word here. . .

page 1433, line 13: are these single year events?

page 1433, line 22: this is not AD540-event, it is AD536-event!

page 1436, line 6: “simple” – are these processes really simple, maybe some other word could be used!

page 1438, line 6: these relationships do not need to be linear if one uses non-linear models for example artificial neural networks. These non-linear methods have been used in dendroclimatology so many years!

page 1439, line 12: “periodical” – would be better to say “temporary” ?

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page 1440, line 20-21: is this all made of spruce?

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