

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

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We would like to thank all three referees for their thorough reviews and great number suggestions to improve our manuscript. We have taken these into consideration in the revised version of the manuscript. We had a large numbers of useful ideas of how to make the manuscript sharper and more focused, and basically many of the comments were quite similar from the reviewers, although stated somewhat differently. Rather than responding to each comment separately, we make a synthesis of the major issues

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that came up in the review process. These points more or less cover the majority of the comments by the reviewers, and since these individual comments and suggestions are dealt with within these “key issues”, they will be changed/improved/clarified according to the structural changes outlined below. For each point we respond and indicate the changes made to the revised manuscript.

Title - It can be concluded from the reviewers that the submitted revision does not quite deliver what is promised from the title. For one thing, it has been biased towards the results obtained from the Swedish research groups which include most of the authors.

Our intention was of course to make it truly Fennoscandian, and as such we have now in the revised version included more results from all countries, based on the comments from the reviewers, but also input from fellow researchers. This is naturally very important, especially since the Finnish dendroclimatological community has been very active in the last few years which we had previously not really acknowledged in the manuscript.

Relevance of this paper One reviewer was concerned that the manuscript did not provide new scientific results, and as such may not be relevant to CP.

This is quite true, rather than providing new results we present a review of old ones. We do, however, argue that there is a scientific interest in such a review. Fennoscandia is the home of several very important dendroclimatological studies, but it is not uncommon that (outside the Nordic countries) tree-ring research in Fennoscandia has been regarded as largely synonymous with Keith Briffa’s research at Torneträsk. One of the aims of this review was to put some spotlight on the additional excellent research that has been conducted in the region. We do agree that the submitted version of this paper did not fully fulfil that intention (see below), but since tree-rings are a highly important proxy for past climates and Fennoscandia is situated in a region where the impact of global warming is expected to be significant, this review has a scientific value.

Length of the paper There was some concern that the paper was too long.

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We agree, and the revised version will be shorter.

Lack of a critical approach Another issue raised by the reviewers is the lack of synthesis and conclusion in some of the sections, as well as a critical approach.

We fully agree, and in the revised manuscript we are being clearer, so that the reader can better assess the different sections in a similar way regarding 1) what has been accomplished, 2) what is the significance of the results, and 3) how can it be improved. By doing this we provide the necessary information to formulate a final overall synthesis and supports the need of future work.

Structure of the paper One main concern of all reviewers is the structure of the paper.

As suggested, we have changed the outline of the manuscript to the following: 1. Introduction 2.1. Fennoscandia: physiography, climate and regional forests; 2.2. Tree growth and climate in Fennoscandia; 3. Early studies of dendroclimatology in Fennoscandia; 4. Reconstructing past climates 4.1.1 Temperature 4.1.2. Long reconstructions; 4.1.3. Divergence; 4.2. Precipitation; 4.3. NAO; 5. Isotope dendroclimatology; 6. Future prospects

This new structure also resulted in that section 2 (Dendroclimatology) was removed, which was also favoured by the reviewers, and we agree that it does not really fit into this context.

References to work in progress There was some concern from the reviewers that there were quite a few references to work in progress in the review.

The references to work in progress have been removed, and any issues that may be of importance (but not finalized/published) are dealt with in the "Future prospects" sections, but in a more general sense so that it does bias the review in favour of the research groups of the authors.

Future prospects Most "future prospects" describe ongoing research.

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Yes, that a definite flaw. The revised manuscript concentrates on visions for future research directions in dendroclimatology in Fennoscandia.

Figure and table material There were some concern regarding the importance and relevance of some figures and tables.

The figures will be revised so that they correspond to the new structure of the paper. As several of them are related to "work in progress" they will be removed and, if needed, replaced with more relevant ones.

Finally... Spelling errors, ambiguous phrasing, missing or erroneous references etc. commented on by the reviewers will be corrected in the revised version of the manuscript

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