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Climate of the Past Discussions

Interactive comment on "Climate variability in subarctic area for the last two millennia" *by* Marie Nicolle et al.

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My co-authors and I would like to thank Dr. D.S. Kaufman for his comments on our submitted manuscript. Here, I would like to response to the essential additions for this paper highlighted by Dr. D.S. Kaufman:

(1) Add a "Data Availability" section: In the updated version of the manuscript, a "Data availability" section is added with the Data URL for the Arctic 2k database v1.1.1 used in this study. As suggested also by the Referee #2, the R software (Team, 2008) used to performed the wavelet analysis and the reference associated to the 'biwavelet' package (Gouhier et al., 2012) used for wavelet analysis will also be added in "2.4. Wavelet Analysis section" of the manuscript.

(2) Add Data Citations and Publication Citations associated to the records: In the updated version of Supplementary Material associated to the manuscript, a new Table is added and replace Table S1. It will contains the description of proxy records in the Arctic 2k database arranged by the three regional regions used in the study, but also reference and it DOI for each record.

(3) Submit the composite temperature time series by region to a public repository: We would like to clarify that we do not produce regional composite temperature time series by region but only regional mean records based on proxy data that has previously been standardized. The regional curves obtained will be published online after the publication of this article.

(4) Why the analyses in this study are based on the old version of the PAGES 2k dataset? In the study, we used the Arctic 2k database v1.1.1 (Mc Kay and Kaufman, 2014) because it was the only version publicly available on the date of our manuscript submission (the February 28th). As you mentioned, a new Arctic 2k database exists but the reference paper associated is not still publicly available (PAGES 2k Consortium, in press; PAGES 2k Consortium, 2017). Without quality criteria of the database it will be difficult to estimate the influence of the use of a new version on the results. Moreover, due to the major difference between the two versions (19 records added and the suppression of 18 records), use the new version does not just correspond to an update of results but means redoing completely the study. This would be very interesting but requires more time and to be the topic of a new paper.

(5) Archive a table that lists the beginning and ending of the LIA: A new Table S3 is added in the Supplementary Material. It will contains the starting and ending dates of the LIA, arranged by the three regional regions used in the study.

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