# Response to F. Charpentier Ljungqvist

**Reviewer's general comments:** *The paper addresses a very important subject, namely if the Atlantic Multidecadal Oscillation (AMO) found in the instrumental record (since c. AD 1850), with its 60–80 year cycle, also can be found in the proxy data extending through the whole Holocene. The authors especially address two climate events: the cold 8.2 ka event and the Medieval Warm Period (c. AD 800–1300). They can show, as have most previous studies, that the 8.2 ka event was cold over (most if not all of) the North Atlantic whereas the Medieval Warm Period was warm over (most if not all of) the North Atlantic. The results are important since they both stress the occurrence of major long-term variability and point to possible explanations for this variability in the climate system. I would therefore strongly suggest that the authors in a further article assess also the Northern Pacific region to investigate whether similar patterns during the Holocene can be found there, in order to gain a better understanding of the coherency of the decadal to centennial climate variability in the Northern hemisphere.*

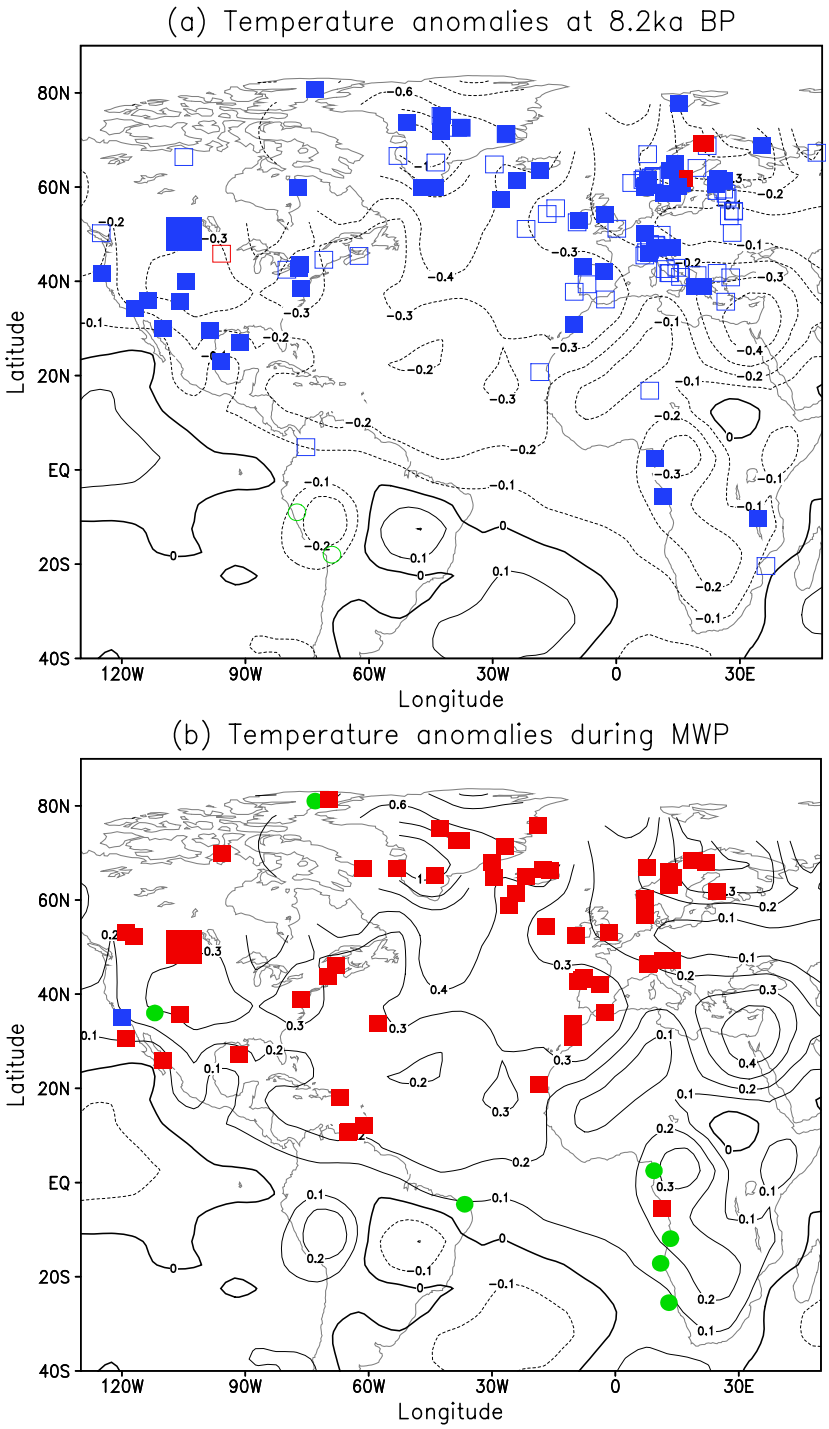
**Response:** We thank the reviewer for encouragement. We will take your suggestion and certainly analyze the decadal to centennial climate variability in the Pacific region in our follow-on work.

**Specific comments 1)** *It falls outside my competence to discuss the technical aspects of the Feng et al. paper, but I do have some comments on their choice of terrestrial palaeotemperature proxy data and the presentation of that data in Table S1 and Table S2 (in the Supplement). Feng et al. compare the sea surface temperature (SST) during the 8.2 ka event and the Medieval Warm Period with the terrestrial palaeotemperature proxy data from the circum-North Atlantic region. However, much of the presently available data are not used. I consider this a shortcoming since more data would make their conclusions more solid, especially for the medieval period. Below, I will list some additional records that I suggest that Feng et al. incorporate in the final version of the paper.*

*For the Medieval Warm Period the following additional records, referred to by the original article they appeared in, should be included in Figure 5b and Table S2:*

*For the 8.2 ka event the following additional records, refer to by the original article they appeared in, should be included in Figure 5a and Table S1*

**Response:** It is amazing how fast the currently knowledge on MWP and 8.2ka event are accumulated in the past years. We thank the reviewer for bringing to our attention the previous works that we did not aware. The literatures suggested by reviewer were collected and our Fig.5 was revised (see the following Figure). The new Figure 5, Table S1 and S2 will all be updated during the revision.




New Figure 5 with additional sites added. The symbols are also larger compared to original Fig.5.

**Specific comments 2)** *In Table S1 and Table S2 Feng et al. refer to temperature changes in _C in a few isolated cases, but have not given any explanation why. In most cases, even when the temperature reconstruction in the original article they refer to are presented in _C, they just describe it as either*

*"Warm" or "Cold". I would strongly suggest that Feng et al. only use qualitative descriptions as "Warm" or "Cold", and not quantitative statements in _C in order to give their presentation a greater uniformity.*

**Response:** Good suggestion. The Table S1 and Table S2 will be revised to just include the qualitative temperature changes.

**Specific comments 3)** *In the discussion about the "Bond cycles", I would like to see a reference to Wanner et al. (2008), where this topic is discussed in-deep.*

**Response:** The Wanner et al. (2008) will be discussed in the revision.

**Specific comments 4):** *Figure 5a–b should be allowed to be much larger in size, approximately the double size, so that the reader is able to easier see the details of the maps. The maps are far too small now to be convenient.*

**Response:** We agree that the Fig.5 is small and hard to read. This problem is partly caused by the publisher because we did submit a large Figure. To make the figure more readable, the figure was revised by making the symbols larger (see the attached Figure on Page 2).

**Minor remarks:** *In the text to Table S1 the authors should be clearer with what they consider to be "new" proxy records.*
*S1, line 22: Seppa should be spelled Seppä with "ä".*
*S1, line 27: Geraga et al. (2008) are no longer "in press". It was published in Journal of Marine Systems, Volume 74, Issues 1–2, November 2008, Pages 623–638.*
*S2, line 22: Soylegrotta should be spelled Søylegrotta with "ø".*

**Response:** The 'new' proxy data we referred to are records not included in Wiersma and Renssen (2006). We will change the table legend to clarify this confusion in the revision.

All other typos will be corrected in the revision.