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Interactive comment on “Defining the Little Ice Age” by Ø. Paasche and J. Bakke

Anonymous Referee #1

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This manuscript presents a new reconstruction of glacial activity from Northern Norway, and a comparison of this record to other glacial records from the North Atlantic region as well as six other records from about 90W to 30E regarded to reflect changes in circulation. The authors suggest that the glacial records are broadly not helpful to define the LIA. Links with the six “circulation sensitive” records (one of which is based upon glacial activity) to long term changes in the Northern Hemisphere Annual Mode, migration of the ITCZ, and larger shifts in ENSO and the West African Monsoon are made and associated with the Little Ice Age. The authors suggest that the Little Ice Age can be constrained in time to 1400 to 1800 and was likely of global extent.

The authors notably make the point that the “Little Ice Age” is perhaps the most well studied climate anomaly of the past, but yet has eluded a comprehensive definition. Based upon the evidence included in this study – six records – they conclude that a concise definition is now possible: 1400-1800. I agree that this sounds appealing and is

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a noteworthy ambition, but do not agree that significant progress has been made here. Six records is a nearly trivial fraction of the available climatic evidence. Furthermore, the records utilized are themselves not reconstructions of atmospheric circulation, but have been linked with these changes. Surely the same considerations must also apply to the numerous temperature and precipitation reconstructions not included in this study. The authors present a very limited selection of evidence, and of the scores if not hundreds of records extending beyond the LIA at decadal to higher resolution, it is not clear why these were chosen. This very much seems to be a case of “cherry picking” – a selection of evidence that matches a theory rather than an objective evaluation of the available evidence. I find a much better case and consideration of the evidence is required.

In addition to possible selection biases with the regional “circulation” records, the authors use of the large scale records might also be prone to selection biases influencing results.

This spatially limited compilation would also not allow conclusions about the global manifestations (or lack thereof) of the LIA.

The authors generally make the point that glacial records are not suitable for defining the LIA, but then use their own recent glacial reconstruction (five times in figure 3) to do so. The authors should decide if glacial records are useful or not and be consistent with this evaluation.

In short I do not find this manuscript suitable for publication, and hence refrain from providing more detailed recommendations/comments. I believe that this will be a new and hopefully more successful manuscript after the authors have undertaken the significant amount of work, I believe is required, to properly assess available evidence.

Interactive comment on Clim. Past Discuss., 6, 2159, 2010.

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