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Climate of the Past Discussions

Interactive comment on "Neoglacial Climate Anomalies and the Harappan Metamorphosis" *by* Liviu Giosan et al.

Anonymous Referee #1

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The article, in reality, consists of two parts: the presentation of a new quantitative reconstruction of Indian monsoon winter precipitation and a discussion of the interlinkages between hydroclimatic changes (e.g. drought) and the collapse of the Harappan civilization. There is no problem in itself with this, although the fact that there are two separate "stories" from time to time makes it slightly more difficult to follow the article. The article is, in general, well written but additional polishing of the text would be preferable prior to publication. The text contains quite a number of typos (especially in the references). Moreover, especially the figures could be clearer and improved. As a minimum, all the graphs should be in colour to make them easier to read. The article is clearly suited for publication in Climate of the Past but first after a careful revision where the authors can consider my suggestions below.

Major comments:

I have no comments regarding the new Indian monsoon winter precipitation reconstruction. It is clearly an important palaeoclimatological contribution that in itself would merit publication in Climate of the Past. On the other hand, the general discussion about climatic–societal links in the past can clearly be improved. This field is nowadays large and the references provided are few and rather old. For example, I am missing the works by Carey (2012), McMichael (2012), Brooke (2014); Izdebski et al. (2015), d'Alpoim Guedes et al. (2016), Nelson et al. (2016), Ljungqvist (2017) and Haldon et al. (2018). The methodological and conceptional problems, and interdisciplinary challenges, connected with trying to link climatic changes with societal changes need to be discussed more.

I would also advice the authors to describe various aspects of the Harappan civilization more in detail on 1–2 pages. Without this information, it is difficult for a non-expert reader to assess if the links to drought that the authors make are plausible or not. I understand that an article of this kind cannot contain a full "handbook text" but more of an introduction to the Harappan civilization would nevertheless be helpful.

Finally, it would be helpful for the reader if the authors added a conclusion/summery of the new reconstruction at the end of the article. As it is now, the conclusion is mainly devoted to the collapse of the Harappan civilization.

Minor comments:

Lines 35–36: This sentence is a bit unclear. Do the authors mean that the Little Ice Age only occurred in the extra-tropical Northern Hemisphere? It was indeed global.

Lines 41—-42 and elsewhere: I am not entirely happy with the phrase "Early Neoglacial Anomaly" – the Neoglaciation started well before the event in question and it is thus not "early".

Line 43: Likely also in other parts of the world.

Lines 49–50 and elsewhere: Consider using “Holocene Thermal Maximum” instead of “Holocene Optimum”.

Lines 56–57: Consider revision here. Archaeologists work with inferring societal changes, and their possible causal connections, in societies lacking written sources all the time.

Lines 59–60: Actually, our knowledge is in many cases rather good today so I would recommend to reformulate this sentence.

Line 313: “Boll” should be “Böll”.

Line 332: Please, make it clear if this ENA is thought to extend all the way to the present.

Line 335: I would cite IPCC (2013) here rather than Mann et al. (2009).

Lines 336–339: How are these LIALE related to, or the same as, the (controversial) so-called “Bond events” detected for the North Atlantic region and elsewhere? I think this should be discussed here.

Line 370 onward: I am not entirely convinced that the impacts of solar forcing and volcanic forcing were necessarily smaller in a warmer world with stronger orbital forcing. The mean state of climate was different but not necessarily the centennial- to decadal-scale variations.

Lines 373–374: Again, you may cite IPCC (2013) here.

Fig. 1: Please, also insert in the legend directly in the figure what the coloured fields mean. Figs. 3–5: Please redraw the figures in colour and make them clearer. Now, both the graphs themselves and the text in them are not very distinct.

References:

Brooke, J.L., Climate Change and the Course of Global History: A Rough Journey

(New York: Cambridge University Press, 2014).

Carey, M., ‘Climate and history: a critical review of historical climatology and climate change historiography,’ Wiley Interdiscip. Rev. Clim. Change 3 (2012): 233–49.

d’Alpoim Guedes, J.A., et al., ‘Twenty-first century approaches to ancient problems: Climate and society,’ Proc. Natl. Acad. Sci. Unit. States Am. 113 (2016): 14483–91.

Haldon, J., et al., ‘History meets palaeoscience: Consilience and collaboration in studying past societal responses to environmental change,’ Proc. Natl. Acad. Sci. Unit. States Am. (2018): 3210–3218.

Izdebski, A., et al. (2015), ‘Realising consilience: how better communication between archaeologists, historians and geoscientists can transform the study of past climate change in the Mediterranean,’ Quat. Sci. Rev. 136 (2016): 5–22.

Ljungqvist, F.C., ‘Human and societal dimensions of past climate change,’ in C.L. Crumley et al. (eds.), Issues and Concepts in Historical Ecology: If the Past Teaches, What Does the Future Learn? (Cambridge 2017): 41–83.

Michael, A.J., ‘Insights from past millennia into climatic impacts on human health and survival,’ Proc. Natl. Acad. Sci. Unit. States Am. 109 (2012): 4730–7.

Nelson, M.C., et al., ‘Climate challenges, vulnerabilities, and food security,’ Proc. Natl. Acad. Sci. Unit. States Am. 113 (2016): 298–303.

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