

Interactive comment on “Interactions between climate change and human activities during the Early to Mid Holocene in the East Mediterranean basins” by J. F. Berger et al.

Anonymous Referee #1

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General remarks:

In this paper, the authors study Early Holocene Rapid Climate Change events on a local scale by using new as well as earlier published geomorphological and other relevant terrestrial and lake data. Such a focus on local, sensitive archives that can be linked to nearby archaeological sites is extremely welcome and complements the existing regional and larger scale records well. Especially strong are the case studies that directly link the geomorphological record and archaeological sites, e.g. at Khirokitia. That local records are important is for example shown by apparently contradictory results from the Greece/Balkans records in this paper compared to regional studies; as the authors explain, the local water balance is not always reflecting the regional

C1

climate trend (line 664-5). As such, the paper addresses relevant scientific questions in a novel way, reaching important conclusions. I therefore recommend that this paper is published in Climate of the Past.

I have some minor suggestions to propose though, as outlined below. Firstly, it would be extremely useful to have a description of the methods that were used. The material and methods section currently gives the cultural background, which is certainly useful, but in addition the more ‘technical’ methods should be described. This section should also clarify why certain methods are used in some of the regions, and others methods in others (e.g. pollen vs geomorphology). Was this what was available or a more conscious choice? The methods section could further include a description of the sites, which is currently partly present in the results section (e.g. line 308-311), but which I would move to the methods section. It could also explain why certain records were chosen but not others (e.g. Dik4 and 12, but not the other cores visible on Fig9). I would also move line 517-520 to the methods sections, where it can then also be explained into more detail.

Secondly, considering the importance of chronology as also stressed by the authors, it is important to present the chronology of the new records in detail and discuss the reliability of the chronology of the existing records and archaeological sites that are used in the paper (e.g. line 318). How were they dated, on what material, what were the dating uncertainties? Dates that have not been published before should be presented in a table and ideally also as age models (this could be done in the Supplementary Information). I am referring here for example to the Dik4 and 12 cores (line 445), NW Greece (line 515), and the site of Sidari (line 518; an age model is already presented in Fig11 and is very helpful). For the dates that were published elsewhere already, it would still be useful to have an overview presented here too.

Specific feedback:

Duration of the 8.2 ka event, line 105-111: This needs some clarification. It now seems

C2

from the text that this may be the same event which is either short or long. However, it is also possible that there was both a more general cooling from 8.6 to 8.0/7.8 ka BP caused perhaps by an enhanced SH, and a more extreme, shorter (more rapid) cooling superimposed on this from 8.2-8.0 ka, caused by a meltwater spike. While this is something that is under discussion, it is necessary, in my opinion, to give this possibility in the paper too.

Discussion: Line 720-721: Some of these early dates are (yet) uncertain as they are in some cases based on charcoal (old wood effect possible, e.g. the earliest Ulucak dates). Line 723-725: how does the appearance of pottery increase the capacity to travel? Previously, other types of containers would have existed (e.g. made of skin, these could also have been decorated), which would in fact be more practical to travel with than heavy pottery.

Conclusion: The future directions are very useful, but it would also be good to have more of a summary/set of clear conclusions coming forth from the paper.

The discussion on synchronicity is generally very considered. In line 233-234 I wonder though: are these really synchronous? At 9.6/9.5 they seem too late for 10.2 and too early for 9.2?

Line 298: Baird 2012 (and other authors) identifies a distinct break at or after 8000 BP.

Line 308-309: The Tigris headwaters are much further east - I would leave this sentence out.

Technical corrections:

Line 14: remove "s" in "Changes"

Lines 26 and 649: Sapropel should be Sapropel

Line 30: I would replace "RCC is" by "Rapid Climate Changes (RCCs) are" to introduce the term clearly (in case the reader has not read the abstract first). It would also be

C3

good if RCC were to be defined, as different interpretations of what "rapid" constitutes are in use in the literature.

Line 39-40: "the vicinity...at site." I think climate and environmental investigations are meant - could this be rephrased to make this clearer? Also, this section refers to "ongoing researches" (line 35) and as such references need to be specified.

Line 45: "chronology" should be "chronological"

Line 78: replace "rhythmed" by "interspersed" or similar. I would also specify what these pulsations entailed (i.e. it became colder/more arid).

Line 95-96: "The potential...been explored." Very true, but please insert references that have looked into this (e.g. Borrell 2007 in Neo-Lithics, Flohr et al. 2015).

Line 136: what is meant by secular? Best to replace this word, for example by centennial (if this is meant?). See also line 601.

Line 158: "in" should be "to"

Line 165: Replace "shortlived" by, for example, "radiocarbon" (not only shortlived dates were used). The point is a very good one though, systematic intra-site evaluations are essential.

Line 185 and 187: "as far as...is concerned" is repeated

Line 222: this is the Early PPNB, not Middle

Line 237: "this" refers to Musular, not Catalhoyuk - please rephrase

Line 257: "records that" - is a word missing here?

Line 259: remove "n" from "Anatolian"

Line 298: "many archaeologists" - this needs references.

Line 302: To be consistent, it would be good to use either 9.3 or 9.2 throughout the

C4

manuscript.

Line 435: "research" - should be something in plural, e.g. "studies"

Line 501: should be "of the Central"

Line 503: considering replacing "important"

Line 510: insert comma in between "floor present"

Line 513: is the figure number correct?

Line 605: remove "largest"

Line 606: remove "was" and "by"

Line 788: "Episode" - should this be "This episode is"?

Line 789: should be "of the 8.2"

Fig. 5: What is MI?

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