

**Editor Decision: Publish subject to minor revisions (review by editor) (18 Jun 2020) by Erin McClymont
Comments to the Author:**

Thank you for incorporating the suggestions made by the two reviewers. These included some minor formatting concerns but also some concern about the way in which some of the arguments were being presented (age model, discussion of forcings). Given the complexity of the data and the likely forcings this was not an easy task. However, in the revised manuscript you have been able to incorporate these comments and the discussion is much more clear.

We would like to thank the editor for this feedback and the minor revisions.

In Table 2 (the new one) could you clarify for the line on Holocene millennial changes which of the options you provide are for 'warm' and which for 'cool' events? For the mid-late Holocene variability line can you clarify if here you are talking about the ~200 year events (to differentiate from the millennial changes line)?

We have adjusted the description so that instead of describing the causes during the warm and cool events together (e.g. Length of the summer season: Extended/reduced) we have separated the suggested causes for the slightly warmer Early Holocene and the slightly cooler Mid-late Holocene into two small bullet pointed paragraphs:

Early Holocene (slightly warmer)

- Extended summer season
- SWW weaker and meridional: increased atmospheric heat transport southwards and reduced Ekman transport of cold water northwards

Mid-late Holocene (slightly cooler)

- Shorter summer season
- SWW stronger and zonal: reduced atmospheric heat transport southwards and increased Ekman transport of cold water northwards

We feel that this clarifies which options apply for warm and cool millennial changes.

We have also specified that the mid-late Holocene variability does include the mechanisms suggested for the 200-260 year cycle, by adjusting the definition in column 1 to read 'Mid-late Holocene centennial variability (inc. the 200-260 year cycle)'

Line 951: you describe 'a sharp cooling event' at 8.2 ka BP but your preceding text is more tentative about this (this is actually the only time that you use this phrase). Perhaps a more accurate description is that there is a significant cooling event at 8.2 ka BP after which there is greater SST variability? You have confirmed with SiZer that this 8.2 ka cooling is significant; a 'sharp cooling' isn't so obvious because it looks more like the 'slightly cooler' conditions after 8 ka BP are driven by the onset of more frequent cooler events rather than a wholesale shift in the average SST? Could you check your phrasing in the conclusion and ensure that it aligns with your earlier description and also the pattern that you want to highlight?

We have removed the statement that this was a 'sharp cooling' which was misleading and not in line with our discussion. Instead we have altered the text as suggested to state:

'before a significant, centennial-scale cooling event occurred at c.8.2 ka BP, followed by greater SST variability ~~and slightly cooler conditions~~ through the period 8-1 ka BP.'