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Climate of the Past Discussions

Interactive comment on "A Revised Mid-Pliocene Composite Section for ODP Site 846" *by* Timothy D. Herbert et al.

Anonymous Referee #2

Received and published: 29 December 2020

Herbert et al. present a revised composite section during the Mid-Pliocene for tropical East Pacific ODP Site 846. Their new composite section is based on an existing high resolution electrical conductivity log (not previously used to establish a composite section). The authors check their composite section with new benthic stable oxygen, carbonate isotope, and alkenone-derived SST data from the same Site and from Site 850 for comparison.

The presented study is interesting and important as Site 846 is one key record for reconstructing the Pliocene climate of the tropical East Pacific Ocean. The new composite section significantly changes previous interpretations of climatic changes around the well-known glacial M2 event. The claims of the authors are supported by the presented data and the manuscript is well written. As such the manuscript is suitable for

this journal, however, before final publication I have some minor comments that need to be addressed:

I think the authors could better explain why using the conductivity record is the best method to achieve a reliable composite section. For instance, although the authors claim this is true in lines 93-96, there are missing some supporting references.

At most figures, scales are missing for the y-axes. It would also be useful if the authors would label the presented records with a) b) etc. in all figures. This would make it much easier to identify each data record.

The authors use at many locations in the text abbreviations like PRISM, HLDT, ODP, FMS, MST, GRAPE etc. which are not explained at their first appearance.

More detailed comments:

Title: The authors focus on changes around the glacial M2 event. Why not mention it in the title?

Line 15: The authors should specify the "errors in primary data sets"

Lines 60-63: The authors could insert a figure with a map showing the locations of sites 846 and 850.

Line 106: Please change "web bulk density" to "wet bulk density" and elsewhere.

Lines 145-151: The sentence is too long. Please split.

Lines 192-194: The authors should specify "In accordance with standard practice". Did they adjust the values according to their reported offsets or according to other studies? and if according to other studies they should specify to which studies.

Line 321: Can "for unknown reasons" be better specified?

Lines 353-356: This is a new observation and has to be first mentioned in the results/discussion part.

Figures:

Figure 6: The authors should clearly indicate which record is from which hole. It would also be nice to see the sections indicated.

Figure 9: Please change “M4” to “MG4”. Please also indicate the cores and sections around glacial M2.

Figure caption 4: I cannot see a clear correlation between the stretching factor and the conductivity log.

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