**Editor Initial Decision: Publish subject to technical corrections** (11 Feb 2015) by Dr. Thorsten Kiefer

Comments to the Author:

Dear Dr. Slotnick and colleagues,

I have finally read all material related to your manuscript and review, as produced during the editorial process so far handled by my colleague Andrea Dutton. I notice that the manuscript was reviewed positively, with only moderate scientific concerns, but many suggestions for minor changes. In your reply and revised manuscript you generally seem to have addressed and incorporated the referee suggestions well. The manuscript is therefore ready for being accepted, contingent on some small tweaks that I suggest, which mostly intend to help getting the messages across more clearly.

Title: "boreholes": "I know that the drilling programs use this term, but I am sure it confuses many people. To many readers studies on boreholes are temperature profiles or other parameters that can be measured or logged within the hole. You are actually studying the sediments, not the holes. Therefore, I would be much more comfortable if you added "borehole sediments" or "drilled sediment cores" or something along these lines.

**-CHANGED to ‘borehole sediments**

Abstract in general: I find it hard to extract a take-home knowledge that you obtained from your CCD reconstruction. Maybe you could highlight the big findings more clearly in the second half of the abstract.In the same spirit, you could spend a sentence or half-sentence towards the beginning of the abstract explaining why we need to know about CCD fluctuations.

**-modified**

Abstract line 10: "The sediment sections are not ideal ...": You could be more specific here by explaining that they are not ideal for WHAT? Or by saying what they actually ARE or DO (e.g. they provide only discontinuous records) instead of what they are not. Also, one does expect a "but/however" to justify why you nevertheless worked on this old and non-ideal material (like: "but to this day they are still the best sediments available ..."). This might further stress the message of a dramatically poor coverage in the Indian Ocean.

**-ADDED discontinous, disturbed as well as best sediments available**

Chapter 2.2: Here again, I think it would be good to spend an extra sentence or two explaining that this is the best material you could presently work on. Or more soberly: Why did you chose these three sites?

**-first sentence of Chapter 2.2 amended.**

Figure 3: Referee #2 asked to include the legend into the figures 4-6, but you argued that you prefer not to. I would like to insist on a change here. To me, a justified figure should be able to stand alone and carry some scientific information. This is not given here. My suggestion is that you include the legend into (the current) figure 4. In the captions of the following figures 5, 6, and 8-10 you can then refer to the lithologic description provided in figure 4 (which will then be Fig. 3). I will inform the editorial office to make sure that the present figure 3 is incorporated into current figure 4.

**-taken care of now.**

Page 12 line 30: "depth": What depth? Paleo water depth?

**-changed**

Page 21 line 24: "less than 20": Can you say how many exactly (e.g. "17")?

**-changed**

I trust that you will incorporate my suggestions as good as possible and sensible, therefore have decided to accept the paper subject to technical corrections, which means that it will not require my final decision any more.

Congratulations to having this nice paper almost published and thank you for submitting your work to Climate of the Past!

I would also like to thank the two referees for their detailed comments and editor Andrea Dutton for leading most of the review process.

Yours sincerely

Thorsten Kiefer