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Climate of the Past Discussions

Interactive comment on "Tropical cyclone genesis across palaeoclimates" *by* J. H. Koh and C. M. Brierley

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Dr Korty is completely correct in his assertion that this study uses only the genesis potential index rather than a tracking algorithm. I had felt that we made that clear in the text. However as both reviewers were uncertain upon this point, we will need to revise to the methodology to emphasise it.

I agree and sympathise that the genesis potential index is only a proxy for actual cyclone genesis. It has been calibrated to provide a plausible estimate of genesis in the modern climate and we can but hope that the calibration is relevant for alternative ones. We discuss the sensitivity of our results to the exact metric/calibration used and highlight that as a concern through comparison with other authors' future projections. We do not explicitly extend that concern to GPI simulated in past climates.

With regards to the terminology, I had felt that after discussing the methodology of the GPI as a proxy for actual genesis, it was then permissible to later refer to just "genesis" for brevity's sake. In retrospect, we overdid this shorthand and will scale it back in any revised submission, as well as alter the title and abstract as requested.

It is interesting to that Dr Korty suggested normalising all the ensemble members. We had initially followed that approach and then revised it in light of a re-reading of Korty *et al.* (2012), which I'd interpreted to use a constant value of b. It isn't clear to me which is actually the correct approach, although obviously it will make a difference to the resultant ensemble mean metrics. In a revised version of the manuscript, we would revert to the normalisation approach. This would allow interested parties to compare with the diagnostics in this discussion paper to look at the impact of the choice.

A revised manuscript would include greater detail in the methods section about the data used. We would also encompass the other minor edits suggested and revise the terminology and description of the GPI.

Interactive comment on Clim. Past Discuss., 11, 181, 2015.