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Climate of the Past Discussions

Interactive comment on "Early warnings and missed alarms for abrupt monsoon transitions" *by* Z. A. Thomas et al.

Anonymous Referee #2

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Review of Early warnings and missed alarms for abrupt monsoon transitions by Thomas et al.

This review is influenced by the review of anonymous reviewer 1. I basically agree with his/her comments. The paper reflects a major technical effort, addresses an interesting topic and produces valuable results. What I miss is an overall critical attitude towards results and methods used from the authors. For instance, fig. 3a shows a non-Gaussian distribution. I doubt whether it is really bimodal and not just skewed. The authors could have used the Dip-test of Unimodality (or another suited test) to check whether this is really true.

I am not a fan of potential well analysis. For instance, if there is just one equilibrium, but the system is subject to a large excursion from this equilibrium (due to enhanced

noise or a transient perturbation in the forcing), the potential well analysis will identify two stable states. It assumes that any form of multimodality is associated with multiple equilibria, which is not necessarily the case. What if sigma changes or alpha (Eqs on line 8 and 12 of page 1320)?

The ESW for this potential switch at 129 ka looks convincing. But the discussion on missed alarms seems somewhat biased. Could it also be that the EWS at 129 ka is a false alarm iso the absence of EWS at other events being missed alarms?

In summary, the ms is unbalanced. Section 2.1 starts with "To test the proposed conceptual model of Schewe et al." The ms reads too much as an attempt to prove the model is right and not really investigates the alternative of it being wrong. I recommend a rewrite towards a more balanced interpretation of the proxy record.

Interactive comment on Clim. Past Discuss., 11, 1313, 2015.