

# ***Interactive comment on “The ENSO teleconnections to the Indian summer monsoon climate through the Last Millennium as simulated by the PMIP3” by Charan Teja Tejavath et al.***

## **Anonymous Referee #2**

Received and published: 23 April 2018

### Summary

The authors use 7 PMIP3 simulations to investigate the ENSO teleconnection to the Indian Summer Monsoon during the Last Millennium. The Author use the present day period to evaluate the model simulations and compare their results to some of the existing proxy reconstructions. The authors claim that during the Medieval Climate Anomaly the frequency of El Nino events is enhanced whereas during the Little Ice Age La Nina events occur more frequently. Then, they discuss some non-linearity which is unfortunately not presented in an understandable way.

Overall judgment

C1

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I see that the authors put a lot of effort to analyze PMIP3 simulations. However, the way how the results are presented and even more importantly the questionable content leads to The manuscript lacks a clear structure; the phrasing is inadequate preventing the reader to understand the content. Furthermore, the main result of the study, that during the Medieval Climate Anomaly (MCA) the frequency of El Nino events is enhanced whereas during the Little Ice Age (LIA) La Nina events occur more frequently is questionable as detailed below. So, I recommend to reject the manuscript from publication in *Climate of the Past*.

### General Comments

I. The manuscript needs a serious proof reading by a native speaker.

II. The structure of the manuscript is not clear, e.g., section 3.4 contains again an evaluation part. Presenting 'preliminary results' in a manuscript makes no sense, either the results are solid and necessary or not (then they shall not be presented). The authors made no clear selection of figures. It looks like the 'randomly' selected eight figures (+ 5 tables) in the main part and put the rest of the analysis made in the appendix (which is 15 figures and 4 tables).

III. The manuscript builds on one main finding, namely an increase of El Nino events during MCA and an increase of La Nina events during LIA. The authors ignore the fact that they use the NINO3.4 index which by definition varies a bit with the global mean signal. Thus, if the global mean temperature due to external forcing is increase the Nino3.4 index will certainly be biased positive and lead to or El Ninos (although the cause is a global signal and not a real change in ENSO). The authors already show in their results that ENSO is NOT changing from the MCA to the LIA as the standard deviation during the periods is the same (see page 10).

IV. All figures are of bad quality.

### Technical comments

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Page 1

L20-21: Unclear sentence

L22-28: Awkward and unclear statements.

L28: divergence center of what??

L29: convergence of what??

L30: Connection between the two parts separated by a semicolon is not given.

Page 2:

L6: IPCC (2013) is not an adequate reference here, please use more specific references

L7-9: Unclear statement

L11-15: Missing references of definition of time periods of MWP and LIA also for the variation of the periods you need to give references.

L18: Be more specific about the regions you are referring to.

Paragraph 3: There is no logical connection to the paragraph before

L33-34: Awkward sentences, please clarify.

I stop here as the entire manuscript is like the first two pages.

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Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2018-7>, 2018.

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