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Climate of the Past Discussions

Interactive comment on "Consistency of the multi-model CMIP5/PMIP3-past1000 ensemble" *by* O. Bothe et al.

Anonymous Referee #2

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General comments: This article examined the consistency of the CMIP5/PMIP3-past1000 ensemble simulations with reconstruction data. Rank count test, residual quantile-quantile plots were employed to test probabilistic and climatological consistency. The sources of inconsistency were investigated by looking into the index variation, regional variation and sub-period variations of consistency results. The analysis in this article also considered the uncertainty in the reconstruction data of past millennium. Correlation studies between reconstruction and each member of simulation ensembles in addition to consistency test greatly helps identify the sources of disagreements. The impacts of exogenous forces and endogenous variations to ensemble simulations were also discussed briefly. The article is generally well-written and fits the scope of CP journal. It provides insights and benefits the Peleoclimate modeling/simulation studies.

Specific comments:

P3792 L11-L15: I suggest provide simple examples of 'different parametric choices' and 'different structural uncertainties' to better illustrate the improvement of current PMIP3-past1000 simulation and the importance of such setups in paleo-simulations.

P3793 L11: I found the notation 'larger distribution' confusing; should it be 'the same probabilistic distribution'?

P3794: The Method part presented the motivation and detailed approaches to assess both 'probabilistic consistency' and 'climatological consistency', which was necessary and very helpful.

P3795 L18: it is difficult to tell if analysis in this article distinguished the forced condition variability and internal variability from the sentence 'Our analysis . . .'

P3803 L9, L11: Does the term 'only just' mean that the statistical tests had marginal significance?

P3808: Section 4.4 discussed the possible impact of the volcanic forcing on the performance of ensemble simulations, which is very interesting. It will be more intriguing if the analyses to distinguish forcing condition variability and internal/modeling variability would be presented and discussed in greater depth.

P3819 Fig 1: what does the maximum of p-values for deviation tests represent?

Technical corrections:

P3791 L7: change 'Comparison of' to 'Comparing between'

P3791 L14: change 'comparison' to 'comparisons'

P3792 L11: change 'considering' to 'consideration of'

P3792 L23: change 'were performed including' to 'performed included'

P3794 L15: change 'an easy understandable visualization' to 'easy understandable

visualizations'

P3795 L10: 'The reconstruction targets uncertainty estimates are used' is confusing.

P3796 L13: change 're-considering' to 'reconsideration of'

P3798 L3 and L10: change to 'The indices are denoted by PDO and AMO' to match the order of indices presented before at L3

P 3804 L4: 'In the worst case' or 'In worse cases'.

P3808 L18: change 'considers' to 'consider'

Interactive comment on Clim. Past Discuss., 9, 3789, 2013.