

## ***Interactive comment on “Pre-industrial and mid-Pliocene simulations with NorESM-L” by Z. S. Zhang et al.***

**Anonymous Referee #1**

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The paper "Pre-industrial and mid-Pliocene simulations with NorESM-L" by Zhang et al. is a contribution to the GMD Special Issue, "Pliocene Model Intercomparison Project (PlioMIP): experimental design, mid-Pliocene boundary conditions and implementation". The authors give a description of the NorESM-L earth system model, used for PlioMIP experiment 2, results of which are briefly presented afterwards. The methodology follows that outlined in PlioMIP.

The paper has been written with clarity and focuses on the main results. It would make a suitable addition to the aforementioned special issue. Listed below are some questions and several minor points to which the authors should draw their attention before publication.

1 Introduction, page 121, line 16: remove 't' after the word 'from'.

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2.4 Ocean model, page 124, line 15: change 'particular' to 'particularly'.

3.2 Mid-Pliocene experiment, page 125, line 12: The same land-sea mask is used for both experiments. Is this purely down to simplicity or does changing the mask in this model require a large amount of effort?

3.2 Mid-Pliocene experiment, page 125, line 16: change 'PRSIM' to 'PRISM'.

3.2 Mid-Pliocene experiment, page 125, line 16: Was there any particular reason as to why the PRISM DOT deep ocean temperature data set was not used to initialise the model for the mid-Pliocene experiment?

4.2.1 Surface temperature, page 129: Are there any suggestions as to what is causing the cooler temperatures found over some regions? For example, are changes in topography related to the temperature reduction over land? It may be worthwhile to write a bit more on this.

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Interactive comment on Geosci. Model Dev. Discuss., 5, 119, 2012.