

Interactive comment on “Arabian Sea upwelling over the last millennium and in the 21st century as simulated by Earth System Models” by Xing Yi and Eduardo Zorita

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We thank the reviewer for the detailed reading of the manuscript and for the suggestions for improvement. In the following, we sketch how we plan to eventually revise this manuscript to address these suggestions.

1. We thank the reviewer for correcting the mistake. This sentence will be changed into “...which is four times coarser than the CCSM4 (288×192).”
2. As suggested by the reviewer, this paragraph will be rewritten by elaborating the link between the SST and vertical velocity. More details will be provided.
3. We are aware of the issue between the orbital forcing and the solar forcing, as men-

tioned by both reviewers and also by Dr. Sebastian Lüning in the short comment. This is already indirectly included in the manuscript, when we discuss the Mid-Holocene simulations of Braconnot et al. They discuss the effect of Holocene orbital forcing by looking at the differences between equilibrium Mid-Holocene and pre-industrial simulations, but in the revision of the manuscript, we will be more explicit on how the orbital forcing and the solar forcing could affect the model results.

The simulations we analyzed in this study are from the CMIP5 project and from the Last Millennium Ensemble. In those model ensembles there are no millennium simulations excluding the orbital forcing. However, the effect of the orbital forcing, as explained above, can be ascertained with simulations driven by orbital forcing alone. However, since all the simulations present consistent long-term trend and the orbital forcing is the only external forcing that display a millennium scale trend, the long term variation of the modelled upwelling should be connected to the orbital forcing.

4. This sentence will be changed as suggested by the reviewer.
5. We thank the reviewer for pointing out the typo and it will be corrected.
6. Correction will be made as the reviewer suggested.

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