

Interactive comment on “Mitigation of the double ITCZ syndrome in BCC-CSM2-MR through improving parameterizations of boundary-layer turbulence and shallow convection” by Yixiong Lu et al.

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This is a great work to mitigate the double-ITCZ bias in BCC model by improving different model parameterizations. It was so impressive how much work have been done to achieve this. I have one comment related to the comparison between BCC-CSM2-HR and BCC-CSM2-MR on the double-ITCZ problem. As shown in my current work (Song and Zhang 2020), which shows that the increase of horizontal resolution of atmospheric model can reduce the seasonal double-ITCZ bias over the eastern Pacific by reducing the easterly wind bias crossing the Central America. We analyzed the CMIP5 models

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by grouping them according to their model resolutions and designed experiments in CESM1. I always want to know to what extent this can also be applied to other models. For your case, I am wondering that if keeping the parameterizations same in both BCC-CSM2-HR and BCC-CSM2-MR, whether the higher-resolution model has smaller double-ITCZ bias. If you have done this kind of experiments, it is a great kindness of you to satisfy my curiosity. If you don't have such kinds of experiments handy, it is fine and just overlook my comments. Finally, this is a great work. I really love it.

Song, F., and G. Zhang, 2020: The impacts of horizontal resolution on the seasonally-dependent biases of the northeastern Pacific ITCZ in coupled climate models, *Journal of Climate*, 33, 941-957.

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