

## ***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.***

**Yixiong Lu et al.**

luyx@cma.gov.cn

Received and published: 25 August 2020

Thank you for your kind comments. I have carefully read your paper, which shows the role of horizontal resolution in reducing the seasonal double-ITCZ bias over the eastern Pacific. Your excellent work provides more ideas for reducing the common double-ITCZ bias in coupled models.

As we shown in Figure 13 in our manuscript under review, the high-resolution BCC-CSM2-HR performs much better in tropical precipitation simulation with smaller double-

C1

ITCZ bias. I guess higher resolution may contribute to the better results. However, with updated model physics and revised dynamics, BCC-CSM2-HR largely differs from BCC-CSM2-MR, and there is no chance to carry out experiments with same parameterizations in both of the two models.

On the other hand, we are developing next generation of BCC high-top models with two different resolutions but same physical schemes. Following your work, we will pay special attention to the impacts of horizontal resolution on the double-ITCZ bias during our subsequent model development. I'd like to keep in touch with you on this issue and to work in collaboration with you to examine whether higher resolution leads to smaller double-ITCZ bias in BCC models.

---

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2020-40>, 2020.

C2