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Comment

## ***Interactive comment on “Evaluation of the eastern equatorial Pacific SST seasonal cycle in CMIP5 models” by Z. Song et al.***

### **Anonymous Referee #2**

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The authors explored model bias for the seasonal cycle of SST in the eastern equatorial Pacific using CMIP5 CGCM outputs, and found that models tend to underestimate the amplitude of the seasonal cycle in the region near the eastern coast. Then, they concluded that the seasonal cycle of SST in the eastern equatorial Pacific is generated by not only the local mean state, but also the remote effect. Their results must contribute to improvement of model bias of seasonal cycle, and thus ENSO. However, some points need clarification. From my point of view, the paper deserves to be published in the journal after major revision.

Major:

1) I cannot understand why the cold SST bias in the mean state causes the realistic simulation of amplitudes of seasonal cycle of EP2 SST.

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2) Is EEP bias related to double ITCZ bias? Also, the explanation in P1135L15~L20 means the effectiveness of the Wind-Evaporation-SST positive feedback, which causes model bias of seasonal meridional migration of the Pacific ITCZ .

3) P1134: Theoretically, the eastward Kelvin wave propagation is more important than the westward Rossby wave propagation on the equator. Could you explain more about the Rossby wave propagation on the equator? Why can eastern EP1 region lead to central EP2 region by one to two months by most models (P1134L13)?

Minor:

P1130, L20: Can the mean EEP bias really cause ENSO simulation bias for amplitude, frequency, and seasonal phase-locking?

P1131, L17: The EEP bias looks similar to eastern equatorial Atlantic SST bias. If the authors can add discussion about comparison with Atlantic SST bias, the paper will be more interesting.

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Interactive comment on Ocean Sci. Discuss., 11, 1129, 2014.

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