

## ***Interactive comment on “Projections of East Asian summer monsoon change at global warming of 1.5 °C and 2 °C” by Jiawei Liu et al.***

### **Anonymous Referee #2**

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This manuscript analyzes the projections of East Asian summer monsoon (EASM) change at global warming of 1.5°C and 2°C. The authors use a new method named ensemble pattern regression (EPR) to correct the projections of East Asian summer monsoon change. However, there are some severe problems in this manuscript.

Major comment:

1. The authors first emphasize two climate systems (Fig.4 and Fig.6), the East Asian subtropical jet (EASJ) and the western North Pacific subtropical high (WNPSH), which are highly related to the EASM. However, the connection between the changes in these systems are not studied based on the original MME or the corrected changes.
2. The EPR method is used to correct the projection of changes in precipitation, mon-

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soon intensity, wind and specific humidity. However, the authors don't show whether the correction of common change bias of each variable is corrected by the historical common bias from itself or not. If so, the connection between the historical bias of one variable and its changes should be demonstrated at first, which is the precondition to use the EPR method.

3. The EPR method introduced by Huang and Ying (2015) depends on some parameters, for example the EOF numbers. These parameters could induce some unreal correction. Thus, it should be carefully chosen and explicitly illustrated to show it is reasonably chosen here.

4. In Section 4, the authors show the intermodel standard deviation (SD) of precipitation decreased dramatically. How about the intermodel SD of changes in specific humidity and wind?

5. This study corrects the projections of EASM change at global warming of 1.5°C and 2°C. The authors conclude the difference of EASM precipitation change between 1.5°C and 2°C is because of the moisture increase by extra 0.5°C. What is meaning to compare the EASM between global warming of 1.5°C and 2°C? The EPR method doesn't seem to help compare their differences.

6. Only 19 models were used in this study. I suggest more models should be used to increase the robustness of multi-model projection.

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