RC3

I recommend that the manuscript undergo major revision before publication. Below are my comments:

Based on the title and the introduction, the paper aims to provide readers with a more comprehensive and detailed understanding of the changes in the spatiotemporal distribution of East Asian summer precipitation under warming scenarios. However, the results do not achieve this goal.

The spatiotemporal precipitation pattern is a key focus of the paper, but in this study, its primary role appears to be limited to the division into two time periods. This approach leads to the following issues:

What kind of change in the spatiotemporal precipitation pattern corresponds to the different changes in these two time periods? While indices can simplify the problem, the author's conclusions should focus on the precipitation pattern. However, in the abstract, the author merely states that precipitation increases across two periods and three regions. This undermines the significance of the indices painstakingly used throughout the paper.

Thank you for the clarifying comment. We agree that the chosen metrics provide only a partial perspective on the spatiotemporal precipitation patterns. These metrics were selected due to their ability to capture the space-time evolution of monsoon rain band, following previous studies (Kusunoki and Arakawa, 2015). However, it seems that the term "spatiotemporal precipitation pattern" has caused some confusion in understanding the metrics we used. This study focuses on the intraseasonal variations of precipitation along the movement of the monsoon band over the East Asia and its three subregions. Therefore, we will consider revising the term "spatiotemporal precipitation pattern" to "intra-seasonal evolution of monsoon rain band" or similar terms throughout the manuscript to better reflect our main results.

Does the authors suggest that the temporal evolution of East Asian summer monsoon precipitation can be sufficiently represented by averaging over just two time periods? If so, I think this point needs further evidence to support it.

Thank you for the good point. We agree that further evidence is needed for the representativeness of our precipitation indices for the temporal evolution of East Asian summer monsoon precipitation. First, we will provide more detailed explanations of our precipitation indices in comparison with other East Asian monsoon circulation and timing indices as appropriate (e.g., Wang et al. 2008; Ha et al. 2020). Secondly, we will highlight the advantage of our indices in representing the intraseasonal evolution of monsoon rain bands for East Asia and its three subregions by conducting further observational analyses using pentad precipitation data.

Wang, B., Wu, Z, Li, J., Liu, J., Chang, C.-P., Ding, Y., & Wu, G. (2008) How to measure the strength of the East Asia summer monsoon. Journal of Climate, 21, 4449- 4463.

Ha, K.-J., Moon, S., Timmermann, A. & Kim, D. (2020) Future changes of summer monsoon characteristics and evaporative demand over Asia in CMIP6 simulations. Geophys. Res. Lett. 47, e2020GL087492.

L45-55: Regarding the uncertainties in the East Asian monsoon projections, I suggest adding the following references:

Zhou S, Huang G, Huang P. A bias-corrected projection for the changes in East Asian summer monsoon rainfall under global warming. Climate Dynamics, 2019,54(1-2): 1-16.

Zhou S, Huang G, Huang P. Changes in the East Asian summer monsoon rainfall under global warming: Moisture budget decompositions and the sources of uncertainty. Climate Dynamics, 2018, 51(4): 1363–1373.

Zhou S, Huang P, Huang G, et al. Leading source and constraint on the systematic spread of the changes in East Asian and western North Pacific summer monsoon. Environmental Research Letters, 2019, 14(12): 124059.

Thank you for informing relevant references. We will include them in our revised manuscript to provide a more comprehensive discussion of the uncertainties in East Asian precipitation projections.