

Reviewer's report for manuscript:

“Evaluation of multi-season convection permitting atmosphere - mixed layer ocean simulations of the Maritime Continent”.

General comments

This paper presents a thorough intercomparisons between the outputs of convective permitting regional climate model and convection parameterised simulation, encompassing various aspects such as: the mean state of precipitation, its diurnal cycle, SST, the representation of equatorial waves and the teleconnection of precipitation with different modes of variability (MJO, ENSO). The evaluations employ both statistic-based metrics and process/regime-based metrics, contributing credibility and bring novelty to this research. The manuscript is well-written with a narrative and easy-to-follow story. Therefore, a “minor revision” is recommended for this current manuscript. Detailed comments for this minor revision are provided below with the hope that they will help to improve the paper's quality.

Comments

1. In general, both of models exhibit a wet bias compared to GPM-IMERGE. Interestingly, more intense precipitation in convective-permitting model compared with the convection parameterised model. It would be beneficial to explicitly explain the reason for these wetter biases. Is there any potential link to the impact of higher resolution on model biases?
2. Please specific the version of GPM-IMERGE used (satellite with or without correction to rain gauge?). Given large observational uncertainties in estimating precipitation over the Maritime Continent due to lack of station network, it is advantageous if the author can conduct additional analysis on multiple observational precipitation products. Some sub-daily products from different sources (in situ, satellite with correction to rain gauge) could be suggested including: GSDR (A global sub-daily rainfall dataset, Lewis et al. 2019); MSWEP (Multi-source weighted-ensemble precipitation, Beck et al 2017). This additional analysis will bring more insights into how observational uncertainties may impact the model evaluation.
3. Regarding Figure 12: was this analysis conducted during the developing phase (DJF) of the ENSO year? Over Maritime Continent, the observed teleconnections vary largely regionally and seasonally. In general, the ENSO-induced summer rainfall variability is dominant over most part of Maritime Continent (e.g., Sumatra, Java Island), while the spring variability is northern Borneo and Philippines (Wang et al., 2020; Chen et al.,

2023). Given this lead-lag teleconnection, it would be preferable to conduct this analysis over MJJASO of the developing year.