

Reply to Editor

This manuscript introduces a valuable, interactive evaluation framework for initialized decadal climate predictions based on the PCMDI Metrics Package. By effectively visualizing lead-time-dependent biases and prediction skills, the tool offers a scalable and reproducible approach for the climate modeling community. The authors have adequately addressed the reviewers' scientific comments during the interactive discussion. The manuscript is scientifically sound and makes a solid contribution to the field, meeting the high-quality standards of Geoscientific Model Development (GMD) once the remaining issues are resolved.

Additional private note (visible to authors and reviewers only):

While the authors have adequately addressed the reviewers' scientific comments during the interactive discussion, I have the following minor comments on this revised manuscript, which need to be corrected before this manuscript can be accepted.

: [We sincerely appreciate the helpful comments.](#)

Page 2, Table 1: In the list of variables, I suggest using "SIC" for sea ice concentration as defined in Line 78 instead of "siconc" for consistency.

: [We changed "siconc" to "SIC" in Table 1.](#)

Table 2: Several spelling errors need to be fixed, including "SH midlatitues" and "Central Artic".

: [Spelling errors are fixed in the revised manuscript.](#)

Page 5, Equations (1) & (2): The subscript "tau" needs to be explicitly introduced.

: [We added "The subscript \$\tau\$ is the forecast lead time" in Line 138 of the revised manuscript.](#)

Page 6, Equation (3): If my understanding is correct, should ACC(M,M') be the average of ACCs between the ensemble mean (M) and each available individual forecast (M')?

: [Yes, the expected ACC indicates the average of ACCs. We modified it as follows to make it clearer: "the expected average of ACCs between ...".](#)

Figs. 1-2, 5-6: Please mention what the gray shading represents in these figures (e.g., no data). I also suggest slightly changing the color scheme of the shading to make it more distinguishable from other colors.

: We changed the color to dark gray to improve readability and added the following explanation to the caption: “Gray shading between LY6 and LY10 for CNRM-ESM2-1 and MRI-ESM2-0 indicates missing data because only 5-year predictions are available.”

Figs. 1 and 5: I suggest printing the corresponding mean/trend values from observations (e.g., references) for each of the five sub-regions, similarly to what was done in Fig. 2 and Fig. 6.

: We added the observed values in the revised Figures 1 and 5.

Line 257: Note that model deficiencies in depicting surface-albedo feedback can also lead to a model warm bias over the Arctic.

: We added “surface-albedo feedback” in the revised manuscript.

Lines 358-359: “The RPCs in the tropics mainly occur in the subtropics”. This regional inconsistency needs to be corrected for clarity – please also check the sentence right before this.

: We modified the sentence as “The RPCs greater than one of the MME LY1 in the tropics are more prevalent in the Northern Hemisphere than in the Southern Hemisphere.” in the revised manuscript.

Page 17, Line 389: Please fix the typo “the thress regions”.

: We fixed it to “the three regions”.

Page 20, Line 434: Please change “reduce” to “reduces”.

: Corrected accordingly.

Page 30, Line 439: Change the uppercase “F” to lowercase “f” (i.e., “Future” -> “future”).

: Corrected accordingly.

References: Please carefully check the order of your reference list to ensure they are listed strictly alphabetically. For instance, Goddard et al. (2013) and Weisheimer et al. (2024) are currently misplaced.

: We re-checked the reference list and sorted them in alphabetical order.

Missing scripts: I noticed that the provided GitHub repository (https://github.com/PCMDI/DCPP_PMP/tree/main/codes) only contains scripts and data up to Figure 9. The codes and data for reproducing Figure 12 and Figure 13 (Arctic and Antarctic SIE skill scores) appear to be missing. Please ensure that all scripts

required to reproduce all figures in the manuscript are uploaded to the repository, and remember to update your Zenodo archive accordingly to reflect these additions.

: [Scripts for all figures have now been included in the GitHub repository and Zenodo accordingly.](#)