Strength:

1) In the perfect model framework, signal and noise component of a parameter is estimated, assuming that ensemble spread is due to initial error, which is more appropriate for short-range forecast (e.g. weather), but may not hold true for long-range forecast (i.e. seasonal), where noise/error introduced by slowly varying boundary conditions are also important. Therefore, estimates of PPL for seasonal climate in this framework may not represent the true limit, which is all about paradox here.

2) Figure 7 shows an important aspect: how the internal variability could contribute to the prediction skill/predictability of ISMR. However noise component is fully attributed to initial error in 'perfect model' assumption.

4) Although signal and noise are estimated under the assumption of orthogonality, it is clear that this assumption does not always hold.

3) Interestingly, proposed method of estimating PPL and ANOVA based PPL are similar in their maximum predictability of rainfall over tropical Pacific region and more importantly free from paradox.

Dear Prof Goswami,

We thank you for your constructive comments on our manuscript. We value your recognition of the study's contributions. And appreciate mentioning the highlights of our work. Here are reply point wise, which we are going to incorporate in the next version of the manuscript to address all the concerns and suggestions. We thank you for highlighting these key aspects of our work.

Weakness:

PPLs are model dependent, improvements in model likely to increase the limit. Longer observations may be required to estimate actual PPL.

We agree with this statement. We have acknowledged these points in the revised manuscript.

Suggestions:

For readers from other domain, some basic discussions, like what is the basic premise/hypothesis of the 'perfect model' framework while using ensemble forecast is required.

Thank you for this suggestion. We have now provided the context about perfect model framework in the introduction.

The estimate of PPL by using a seasonal prediction model from a large ensemble of hindcasts by choosing the ensemble mean of 'best' initial conditions may be acceptable. However, the manuscript does not provide a discussion on how to realise the PPL in operational framework. It is possible that growth of 'initial error' may never allow the model to achieve the PPL. Even if we knew what are the 'best initial conditions' in the

ensemble, it would lead to overfitting and unreliable forecast. A discussion on how the PPL could be achieved either by tradition methods or by a deep learning/AI model trained on the large ensemble of hindcast experiments would significantly enhance the quality of the manuscript.

We agree that this method is a diagnostic/post-hoc sensitivity tool rather than a ready-to-implement operational algorithm. In real-time forecasting, growth of initial condition errors, along with model physics errors make it difficult to achieve PPL. Selecting “best” members in real time would lead to overfitting. We will include a discussion on how PPL could be achieved by other methods like AI/deep learning technique.

We believe these changes will address your concerns and improve the manuscript's clarity. We will submit a revised version incorporating these revisions shortly. Please let us know if you have any further suggestions.

Thanking you,

Yashas Shivamurthy