

Public justification (visible to the public if the article is accepted and published):
Thank you to the to input from reviewers, commenters and responses from the authors for this submission. Clearly there are significant differences across these and I'm trying to consider all of these contributions in as fair a way as possible in order to make this decision. In the end I feel that the comments of reviewer two who originated much of the work in the paper, the positive feedback of the commenter and the two sets of responses to the first reviewer make me confident that this paper merits publication. However, it is with a set of major revisions that will be two-fold 1) for reviewer 1 I feel the question of ANOVA definition remains somewhat unresolved and the authors should provide a narrative that can clarify this 2) I do believe that reviewer 2 is correct in their final major comment regarding the paper's speculative work on subsetting the ensemble to determine the highest skill. So I request that they remove or reduce this section entirely or reduce substantially to include just brief comments.

Ultimately, I believe the merits of this work should be subject to scientific criticism through publication, as it does focus on the appropriateness of certain approaches, and that is why I made this decision.

We thank the Editor for the valuable suggestions. We have made our best efforts to address both concerns. All changes are made in track change mode.

1) for reviewer 1 I feel the question of ANOVA definition remains somewhat unresolved and the authors should provide a narrative that can clarify this:

Reply: We thank the Editor for highlighting the need for a clearer description of the ANOVA framework. In response, we have revised Section 2.3.1 to provide a more comprehensive and coherent explanation of the method, including its origin, underlying assumptions, and mathematical formulation, along with appropriate references to previous studies that have successfully applied this approach.

Importantly, we have now added an introductory narrative paragraph at the beginning of Section 2.3.1 (lines 111-118) to explicitly describe the conceptual basis of the ANOVA method in the context of predictability estimation. This addition is intended to guide the reader through the physical interpretation of signal and noise separation prior to the formal equations, thereby improving clarity and accessibility of the methodology.

2) I do believe that reviewer 2 is correct in their final major comment regarding the paper's speculative work on subsetting the ensemble to determine the highest skill. So I request that they remove or reduce this section entirely or reduce substantially to include just brief comments.

Reply: We thank the Editor for this valuable suggestion. As noted in our earlier response, we respectfully believe that the reviewer's concern is not entirely applicable to the present case.

Specifically, the reviewer suggested that a large PPL could arise even when the realized forecast skill is negligible, particularly if individual ensemble member skills are symmetrically distributed around zero. However, in our analysis, we presented both the maximum and minimum attainable skills, which remain positive, indicating that the estimated maximum skill is physically meaningful and not an artifact of opposing ensemble contributions. We emphasize that estimating the maximum achievable skill of a model is an important diagnostic objective, which forms the basis for defining the PPL.

Nevertheless, in accordance with the Editor's recommendation, we have removed this material from the Results section. A substantially condensed discussion has been retained in the Summary and Discussion section to briefly highlight the key concept, and Figure 10 has been retained in reduced form, while Figure 11 has been moved to the Supplementary Material (**pages 18-25**). We sincerely hope that these revisions improve the clarity and overall usefulness of the manuscript.