

SESSION: (B5) Hindcast and forecast quality assessment

(B5-05)

An advanced score for evaluating seasonal forecast skill

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A common tool to evaluate the performance of seasonal and decadal predictions are the Anomaly Correlation Coefficient (ACC) and the root-mean-square error (RMSE). Both methods rely on assumptions, among others normality assumptions of the data or uncertainty. Failing these assumptions can lead to under- or overestimation of the skill. Also, RMSE and ACC show different characteristics of the forecast skill, but do it in a non-comparable way.

We have developed a new score for predictions, which is independent of the data distribution. The score categorises the model and observational data and creates a multi-categorical contingency table (MCT). On this a metric from image processing, the two-dimensional Earth Mover's Distance (EMD), is applied and a score estimated. Applying a categorisation allows to evaluate clearly non-gaussian datasets like precipitation, but also for variables like temperature, which are assumed to be gaussian.

We demonstrate this at the hand of an analysis of seasonal prediction. We show strategies to generate spatial patterns with this new score, which are similar to the ACC and RMSE and so bring both procedures to the same basis and making them comparable. We also show differences for the ACC, when the normality assumption is dropped.