Stratified Verification of Decadal Predictions - Influence of ENSO and AMV phases on Forecast Skill

Andy Richling, Jens Grieger, Henning W. Rust, and Uwe Ulbrich
Institut für Meteorologie, Freie Universität Berlin, Berlin, Germany (andy.richling@met.fu-berlin.de)

The forecast skill of decadal predictions is assumed not only to vary with lead time but also with low-frequency climate modes such as the El Niño-Southern Oscillation (ENSO) or the Atlantic Multidecadal Variability (AMV). The state/phase of these variability modes could have an influence on predictability during the initialisation procedure of decadal predictions and therefore also on the overall forecast skill. Here, we decompose the Ranked Probability Skill Score (RPSS) into two parts to estimate the skill contribution stratified along the different phases of a given low-frequency mode. The first part consider the contribution to the total skill during a certain phase of the variability mode, whereas the second part will give information about the contribution during the opposite phase.

In this study, we analyse the latest ensemble hindcast set of the MiKlip (MiKlip is Germany's national initiative for decadal prediction) decadal prediction system based on the high resolution version of the Max-Planck-Institute Earth System Model (MPI-ESM-HR). First results of the stratified verification of the surface temperature indicate an influence on skill in the North Atlantic and Pacific region during different states of the ENSO phenomenon.