Stratified verification of decadal mid-latitude cyclones and wind storms forecasts

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This study investigates the decadal forecast skill of mid-latitude cyclones and wind storms dependent on low-frequency climate modes. Objective tracking methodologies are applied for the identification of cyclones and wind storms. The decadal prediction system of the German initiative on decadal predictions, MiKlip, is used to evaluate probabilistic prediction skills of windstorm densities. Initialized experiments are compared with climatological forecast as well as uninitialized historical simulations as reference whereas ERA reanalyses products are taken as observations.

With respect to cyclone and windstorm track density the initialized experiments show a positive prediction skill over climatological forecast. For certain regions the hindcast experiments show also positive skill over uninitialized simulations. These are the entrance regions of the North Pacific and North Atlantic storm tracks as well as spots in the Eastern North Atlantic near the Iberian Peninsula.

This contribution analyzes how far the skill of wind storms and cyclones depends on low-frequency climate modes, e.g. the Atlantic Multidecadal Variability (AMV). Stratifying verification along an AMV index it can be shown that skill is larger for negative than for positive phases, especially for the Eastern North Atlantic.