Calibration of decadal ensemble predictions

Alexander Pasternack (1), Henning W. Rust (1), Jonas Bhend (2), Mark Liniger (2), Jens Grieger (1), Wolfgang Müller (3), and Uwe Ulbrich (1)

(1) FU Berlin, Institute of Meteorology, Berlin, Germany (alexander.pasternack@met.fu-berlin.de), (2) MeteoSwiss, Climate Division, Zürich, Switzerland, (3) Max Planck Institute for Meteorology, Hamburg, Germany

Decadal climate predictions are of great socio-economic interest due to the corresponding planning horizons of several political and economic decisions. Due to uncertainties of weather and climate, forecasts (e.g. due to initial condition uncertainty), they are issued in a probabilistic way. One issue frequently observed for probabilistic forecasts is that they tend to be not reliable, i.e. the forecasted probabilities are not consistent with the relative frequency of the associated observed events. Thus, these kind of forecasts need to be re-calibrated. While re-calibration methods for seasonal time scales are available and frequently applied, these methods still have to be adapted for decadal time scales and its characteristic problems like climate trend and lead time dependent bias. Regarding this, we propose a method to re-calibrate decadal ensemble predictions that takes the above mentioned characteristics into account. Finally, this method will be applied and validated to decadal forecasts from the MiKlip system (Germany's initiative for decadal prediction).