



## **Calibrating probabilistic decadal predictions with DeFoReSt**

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

(1) Freie Universität Berlin, Meteorology, Berlin, Germany (alexander.pasternack@met.fu-berlin.de), (2) Federal Office of Meteorology and Climatology (MeteoSwiss), Zürich, Switzerland, (3) Max-Planck-Institute for Meteorology, Hamburg, Germany

Near-term climate predictions such as decadal climate forecasts are increasingly being used to guide adaptation measures. Due to the uncertainties in initial conditions of weather and climate, forecasts are framed probabilistically. 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. Moreover, decadal prediction models typically exhibit systematic errors like lead-time dependent unconditional (drift) and conditional biases. Here we propose a decadal forecast recalibration strategy (DeFoReSt) taking these problems into account. We apply DeFoReSt to the MiKlip system (Germany's initiative for decadal prediction) and quantify the impact of the above mentioned issues on the predictive skill of this decadal prediction system.