



A Wavelet Approach to the Verification of Probabilistic Spatial Fields

Michael Weniger and Petra Friederichs

Meteorological Institute, University Bonn, Germany (mweniger@uni-bonn.de)

While many verification techniques for deterministic spatial fields have been developed during the last decade, the extension to a probabilistic environment is largely unexplored. Probabilistic spatial fields arise due to non-negligible observational uncertainties or in form of spatial ensemble output. A method to verify such fields has to satisfy two crucial conditions: first, it has to be robust against strong stochastic effects due to observational uncertainties. Second, the resulting scores have to be able to isolate and capture leading multivariate characteristics of high dimensional probability distributions. Approaches based on Wavelet decomposition are widely used in other scientific fields, such as facial recognition and retina scans. We aim to make these results accessible for meteorological data. To this end aspects of successful deterministic methods, which have proven to be robust against stochastic influences, are used for pre-processing of the spatial fields.