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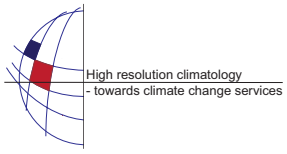

Using the Plant-Craig stochastic convective parameterization in an ensemble forecast system

P. Groenemeijer and G.C. Craig

Ludwig-Maximilians-Universität, Meteorologisches Institut, München, Germany (groenemeijer@lmu.de)

We have implemented the Plant-Craig (PC) stochastic convection scheme into the limited-area COSMO (Consortium for Small-scale Modeling) model. We have run the model with initial and boundary conditions provided by selected members of the ECMWF Ensemble Prediction System (EPS). This allows us to compare how much ensemble spread is introduced to the ensemble by the stochastic scheme relative to that already present.

A stochastic parameterization, like the PC-scheme, takes into account the fact that the intensity of unresolved convection is not merely determined by resolved-scale parameters, but also by unresolved physics. To this aim, the PC-scheme, being based on statistical physics, uses convective plumes that are randomly drawn from a probability density function that describe the chance of launching a plume with a certain mass flux each time the scheme is called.

We will discuss to what extent the stochastic scheme produces feedback to the large-scale flow and if the structure of areas of parameterized precipitation has improved. Finally, we will address the question whether and how predictions of high-impact weather may benefit from our approach.