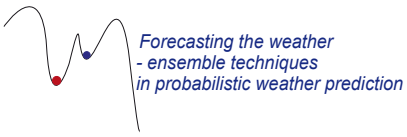
EMS Annual Meeting Abstracts
Vol. 8, EMS2011-230, 2011
11th EMS / 10th ECAM


# Multiparameter Error Correction and Downscaling of Regional Climate Models

R.A.I. Wilcke, A. Gobiet, T. Mendlik, and M.J. Themeßl

University of Graz, Wegener Center for Climate and Global Change and Institute for Geophysics, Astrophysics, and Meteorology, Regional and Local Climate Modeling and Analysis Research Group, Graz, Austria (renate.wilcke@uni-graz.at)

Even though regional climate models (RCMs) proofed to have skills in simulating past and present climate, they still feature systematic errors and can often not used directly as input for climate change impact studies. Statistical post-processing methods, like Quantile Mapping (QM) are one way to tailor RCM output for impact research. QM adapts modeled time series by adjusting the modeled to the observed empirical cumulative frequency distributions. QM's applicability for daily temperature and precipitation has already been shown in previous studies. In this study we additionally investigate the applicability of QM to relative humidity, global radiation, wind speed and surface air pressure on the daily scale. RCM data are taken from the ENSEMBLES dataset. The error-correction is performed for study regions within Austria and Switzerland, defined within the Austrian climate research fund project "CC-Snow" and the EU FP 7 project "Assessing Climate Impacts on the Quantity and Quality of Water" (ACQWA) based on observational station records. Thus, additionally to the error correction, QM downscales the RCM simulation to the point-scale.
The performance of QM will be evaluated between 1971 and 2009 using split-sampling by spatial and temporal bias characteristics, absolute errors and probability density functions. In addition, an exemplary application of error corrected scenarios as input for hydrological simulations will be presented.