



Bias correction and localization of regional climate scenarios over mountainous area on a 1x1 km grid

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The project "CC-WaterS" (Climate Change and Impacts on Water Supply) deals with challenges of water supply under the influence of existing and future climate change in Central and Eastern Europe.

The meteorological part within this project assesses future climate conditions by using different regional climate models. The following three scenarios from the ENSEMBLES database are used: ECHAM5-REGCM3, ARPEGE-ALADIN, and HADCM3-PROMES with a spatial resolution 25 km each.

For the whole target area, regionalization and bias correction by quantile mapping for temperature and precipitation is performed on a daily basis by using observations from the E-OBS dataset (25 km resolution) from the ENSEMBLES database. Over the Alpine region, a precipitation dataset from the ETH Zürich with a spatial resolution of about 18 km is applied.

For one case study region in the Eastern Alps (containing the mountain areas of Hochschwab, Rax and Schneeberg in Styria/Lower Austria) a second step is taken to depict the small-scale variability in mountainous terrain. This is performed by using the precipitation analysis from the nowcasting system INCA provided by the Austrian Meteorological Service (ZAMG). These analyses combine ground-based and radar observations on a 1x1 km grid. With additional local temperature and precipitation observations, a localized, bias corrected precipitation scenario dataset on a daily base is produced.

This presentation will discuss the method of bias correction and localization and the results for the 21st century. In a second step, uncertainties will be quantified, both resulting from the climate scenarios as well as from the localization method applied.