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Bias correction in hydrological climate change impact studies

A. Gobiet, G. Heinrich, S. Tani, and R.A.I. Wilcke

University of Graz, Wegener Center for Climate and Global Change and Institute for Geophysics, Astrophysics, and Meteorology, Graz, Austria (andreas.gobiet@uni-graz.at, +43 (0)316 3809830)

The assessment of hydrological impacts of climate change in the mountainous areas demands accurate and high resolution climate scenarios. For hydrological applications, the key input variables are typically precipitation, temperature, radiation, wind, and humidity, either at very high spatial resolution (1km grid or finer) or at station scale, and with daily or sub-daily temporal resolution. Such requirements are very demanding and call for high resolution climate simulations in combination with suitable downscaling and model error correction (MOS-type) methods.

This presentation reviews the state of the art of climate bias correction methods, discusses specific issues which are currently still subject to further development, like consistency in multi-parameter datasets, spatial consistency, sub-daily temporal resolution, and extreme events and gives several application examples in the Alpine area, which were conducted in the framework of the ACQWA project (Assessing Climate Impacts on the Quantity and quality of WAter, EU-FP7).