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Bias Correction Intercomparison Project (BCIP): an introduction and the first results

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There is a growing demand on regional climate change information for use in impact modelling which in turn provides downstream input for decision-making. Such information generated by climate models has a number of uncertainties and one of them is ability of climate models to accurately simulate the complex climate system. All model are only an approximation of the real climate system and have different errors or biases resulting in deviation of the simulated climate from the observed once. Nowadays, it is widely recognised that climate model results, as an input to impact models, cannot be used directly and an adjustment (bias correction) towards the observed climatology is necessary. Applying bias adjustment to climate model simulations introduces a new, unexplored level of uncertainty in impact modelling and often the bias-adjusted simulations are blindly used even if their limitations are very well known.

To fill such bias-adjustment-related gaps in use of climate information a Bias Correction Intercomparison Project (BCIP) has been recently established. The BCIP addresses following topics: i) to quantify what level of uncertainties bias adjustment introduces to workflow of climate information, ii) to advance bias-adjustment technique and iii) to provide the best practice on use of the bias-adjusted climate simulations. Within the BCIP two experiments focusing on different climate zones have been designed, namely: one on the mid-latitude climate taking the Euro-CORDEX simulations (50km) and the E-OBS data set as a reference and the second on the tropical climate using the CORDEX-Africa simulations (50km) and the WATCH ERA-Interim data set as a reference.

Applying different bias-correction methods and different modifications of the same method to the same input data sets allows assessing impact of bias-correction technique on climate simulations. A number of various statistics describing climatology are taken for evaluation and analysis starting from basic seasonal means and ending, with a special emphasize, by high-order statistics as extreme events, variability and climate indices. We present a detail overview of the BCIP together with the first results.