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Simple Statistical Bias Correction for Climate Change Applications

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It is envisaged in this study to make use of temperature and precipitation from CMIP-5 climate model output projections for climate change applications. Bias correction of temperature and precipitation from CMIP-5 GCM simulation results with respect to observation is discussed in detail. The non-linear statistical bias correction is a suitable bias correction method for climate change data as it is simple and does not add up artificial uncertainties in the impact assessment of climate change scenarios for application studies in the future projection. The simple statistical bias correction uses observational constraints on the GCM baseline and the projected results will be scaled with respect to the changing magnitude in the future scenarios varying from model to model. Two types of bias correction technique results are shown here. 1) A simple bias correction is done using percentile based quantile-mapping algorithm, 2) a simple but improved bias correction method, a Cumulative Distribution Function (CDF-weibull distribution function) based quantile-mapping algorithm. This study brings out that the percentile-based quantile matching method gives results similar to the CDF (weibull) based quantile matching method.