



## **Regional climate change scenarios, based on statistical downscaling using the WETTREG model**

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The paper is making the point that, within the climate change terminology, the term climate prediction is somewhat misleading and should be replaced by projection or scenario. As a source for high resolution climate change scenarios, WETTREG, a statistical model, is presented. It relies on the ability of numerical global models to produce a consistent set of circulation patterns, occurring with a meaningfully changing frequency in the global scenario runs. In several stages, WETTREG synthesizes local time series for the current and the future climate which have reasonably realistic statistical properties and behaviour. It encompasses a pattern-building stage, the application of a weather generator, the objective re-identification of current-climate patterns in global scenario model runs and a regression stage which enables the synthesized time series to extend their value range. This approach is quite cost-efficient and does not require mainframe computer power. The resolution of the model depends on the number of available stations at which the time series are computed. Results for German stations will be shown which allow studies of the fine structure of climate change. They include comparisons of the regional consequences of different emission scenarios on climate elements, e.g., temperature, precipitation or cloudiness, as well as complex, derived time series properties such as the frequency and duration of cold spells or heat waves. Other important indicators of the character of a potential future climate include the changes in the number of days when thresholds are surpassed.