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A comparative extended validation of statistical downscaling and regional climate models on a common dense grid in Central Europe

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Validation of climate models is an important task before their outputs are used e.g. in climate change impact studies. Although both statistical and dynamical downscaling methods have been validated thoroughly, comparisons of their performance are still rather scarce. This is especially true for non-trivial statistical measures, other than mean (bias) and explained variance, whose correct reproduction may, nevertheless, be essential in specific applications and impact studies. In this contribution, we subject several statistical downscaling methods (both linear and non-linear) and outputs from high-resolution (∼10 km) regional climate models to the identical validation procedure. The validation characteristics include temporal and spatial autocorrelations and higher-order statistical moments for daily temperature and precipitation. The validation is conducted on a dense grid (with approximate resolution of 10 km) in central Europe.