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An improved statistical downscaling method for seasonal climate projections

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The statistical analogue resampling scheme (STARS) is usually applied to generate future climate ensembles on a regional scale prescribing an annual mean temperature trend until 2100. The basic idea of this downscaling method is, that past weather situations will recur in a similar way in near future. For this purpose, a temporally rearrangement of annual means is done resulting a mapping from dates of a simulation period to dates of the observation period.
In order to improve the seasonal representation of the future climate the long-term observations and the prescribed trend taken from the CMIP5 ensemble is restricted to a 3-month period for the summer (JJA) and winter (DJF) season, separately. Furthermore, a 30 yr sliding projection shifted by 10 yr has been applied to capture the non-linearity of the mean temperature slope in future.
The results reveal a much better characteristic of the seasonal climate change in Germany. Comparisons with dynamical ensembles within EURO-CORDEX face the projected distributions of precipitation and temperature extremes. The generally tendency of the statistical downscaling approach to a much drier future is reduced within the post-processing by separating dry and wet realisations.