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The Performance of the PRUDENCE RCMs in Simulating Regional Droughts

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We perform a statistical analysis of the distribution of consecutive days of drought using the PRUDENCE project RCM simulations with a 50 km horizontal resolution, and compare this to a gridded data set of observed precipitation time series over Europe. A day of drought is here defined as a day when there is less precipitation than the climatological level minus one standard deviation. We find that the models are simulating the observed distribution of dry days well for both European sub-regions as well as for the whole of Europe. The skill of each model is assessed using a match metric which calculates the overlap between two normalized probability density functions. We find that each of the PRUDENCE RCMs has a skill of around 0.9, where a skill of one is a perfect match.