



## **Reliability of precipitation: From seasonal forecasts to climate change projections**

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Climate projections of regional precipitation are needed to guide decisions on infrastructure investment to adapt to anthropogenic climate change (ACC). For example, following two consecutive dry winters in Southern England between 2004 and 2006, is a national water grid required to prevent prolonged water shortages? Critical to answering these questions are probabilistic ACC projections of precipitation change from the ensemble of global climate models. These, for example, indicate broad agreement of an increase in the frequency of occurrence of wet winters over Northern Europe. How trustworthy are these probabilities? Motivated by recent proposals to explore the utility of "seamless" prediction methods across weather and climate timescales, we propose a novel method to calibrate probabilistic multi-model projections of climate change, based on a reliability diagram analysis of corresponding multi-model seasonal-forecast ensembles. The DEMETER seasonal-forecast database is used to illustrate both the calibration method and the means by which such calibration can impact quantitatively on infrastructure-investment decisions. The impact of calibration is particularly large for precipitation projections over Europe.