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Link between trends in extremes and trends in mean and variance for temperature in climate model simulations

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Recent studies conducted using observed temperature series have shown that the trends in extreme temperatures are generally strongly linked to the trends in mean and variance, both for winter and summer daily minimum and maximum temperatures (Parey et al. 2012). This result is important for practical applications devoted to the estimation of future rare levels, since this means that they can be derived from the changes in mean and variance at the desired future time scale. However, this requires the link to be valid in the future. Thus, the aim of the present study is first to check whether climate models reproduce the observed link and then to analyse whether a similar relation is still found for future climate. If possible, climate model simulations of the CMIP5 project will be considered, if not, the study will be made using the ENSEMBLES project global or regional simulation results.

Parey S., Hoang T.T.H., D. Dacunha-Castelle (2012): The role of variance in the evolution of observed temperature extremes in Europe and in the United States; submitted to Climatic Change, under revision