



The assessment of future extremes of air temperature to design EPR type power plants

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EDF projects the construction of new EPR type nuclear power plants in Europe. These installations are likely to run until the second half of the century, and thus, it is necessary to think their dimensioning in taking current knowledge of climate change impact into account. This paper will present the study dedicated to the estimation of future extremes of air temperature by using the statistical extreme value theory. The adopted methodology consists firstly in comparing current climate temperature extremes between local observations and models at the nearest grid point. Then, if the extremes of both series are comparable, future extremes are derived from the modelled series for a future period. In parallel, the link between the evolution of the mean, variance and extremes is studied in the observation series. If a strong link is identified, future extremes are derived from the stationary extremes of the centred and normalised series and the changes in mean and variance given by climate models for the desired future period. The approach will be illustrated with an example of such an evaluation for an EPR project in the United Kingdom.