



## **Evolution of extreme events in CNRM Climate Change scenarios**

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Among the several effects of anthropogenic warming, the increase or decrease of extreme events is of primary importance since human and material losses can be dramatically induced by their occurrence. Nevertheless, when dealing with such concepts, it is important to specify which degree of extremeity one wants to consider since the methodologies used will depend on the scarceness of the studied event. If it is scarce enough, extreme values statistical methods may be a good tool for the study, even if one must consider that what is actually infrequent may become usual in the future. Events which occur more frequently may be more suitable to study but it is necessary to fold back on the use of classical statistical tools. Moreover, definitions of the important events often depend on the region of the world concerned. According to the 4th IPCC Assessment Report requirements, CNRM has produced an ensemble of simulations with CNRM-CM3 global model (ARPEGE-Climat AGCM coupled with OPA8 OGCM), in which GHGs and aerosols concentrations are prescribed, following observations for the 20th century, and SRES scenarios A1B, B1 and A2 for the 21st century. The aim of the presentation is to show the first results of our simulations concerning extreme events diagnostics, based on the methodology of Frich et al. (2002). Firstly, part of the 20th century evolution of these indices will be validated against observations. Then, their simulated response over the 21st century will be investigated for the different scenarios.

### **References:**

Frich, P, Alexander LV, Della-Marta P, Gleason B, Haylock M, Klein Tank AMG, Peterson T, 2002: Observed coherent changes in climate extremes during the second half of the twentieth century, *Climate Research* 19: 193-212