
Stochastic simulation and extremes of climate variables in an industrial context

Sylvie Parey*¹

¹EDF Labs – EDF Recherche et Développement, OSIRIS – France

Abstract

EDF activities are exposed to the meteorological conditions in many ways: electricity generation is more and more linked to meteorology with the increasing share of renewables, electricity demand is influenced by the temperature and electricity transmission networks need to be resilient to meteorological events. Furthermore, all facilities and buildings have to withstand extreme hydro meteorological events, the requirements being more demanding for sensitive installations like nuclear power plants. Therefore, EDF/R&D is involved in climate change science and especially in the characterization of extremes in the climate change context for decades now. Stochastic Weather Generators are important tools to efficiently produce large samples of climatic variables under different climate contexts, useful to estimate extreme levels, especially when the statistical Extreme Value Theory is not applicable. The presentation will describe different stochastic models developed at EDF/R&D together with examples of their use in the industrial context.

Keywords: stochastic weather generator, extremes, climate

*Speaker