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Mardi 3 mars 2020 à 11h00

Physical, mathematical and statistical challenges for the study of extremes in a changing climate

Extreme Event Attribution (EEA) is a new branch of atmospheric sciences that tackles the relations between the occurrence of extreme climate events (like heatwaves, cold spells, storms, etc.) and climate forcings (like human induced greenhouse gas emissions). While it is obviously impossible to give a cause to the triggering of an event, EEA concentrates on how the event probabilities can change when climate forcings are applied. The first difficulty to overcome is linked to the sampling of extreme events, which are rare by essence. Then more subtle (but important) challenges appear, like the physical definition of the event (what variable? what domain?), the factors leading to the event, then how to estimate probabilities. Treating those challenges requires tools from statistics (extreme value theory, stochastic processes...), dynamical systems (recurrences in chaotic systems) and climate model simulations.

I will give elements of EEA and will illustrate how to tackle those challenges on recent climate events that hit Europe.

Salle 101 - Bât. 200, Orsay

Organisation :

Joao Coelho - Thibaud Louis - Aurélien Martens - Dimitris Varouchas (IJCLab) - seminaires@lal.in2p3.fr

IJCLab web : <http://www.lal.in2p3.fr>

Indico: <https://indico.lal.in2p3.fr/category/31/>

