Climate change and flood risk

Pierre Ribereau

Costs related to flood disasters may be huge for insurance companies. Moreover, probably due to climate change, we observe an increase in frequency and severity of this kind of disasters. As a consequence, flood risk management by insurers must be reconsidered: it is important to get an accurate estimate of these risks.

We propose a simple model describing costs for the insurance company and allowing dependence between the proportion of damage due to the flood and the maximum level of the river for the considered time period. Climate change on the hydrologic variable can be added. In this model, we derive statistical estimation for the cumulative distribution function, expected value, VaR and TVaR of the claims.

Numerical examples will illustrate the theoretical findings.

Keywords: Extreme value, Climate change, Flood risk.