Modeling flood and drought insured losses at current and future climate conditions in France

David Moncoulon*†[1]

[1]Caisse Centrale de Réassurance (CCR) – Ministère de l'Economie, des Finances et de l'Industrie – 31, rue de Courcelles 75008 PARIS, France

Abstract

CCR is a French reinsurance company belonging to the French State, providing an unlimited state-guaranteed coverage to its clients (ceding companies) for natural disasters covered within the French Natural Catastrophe Compensation scheme (Law n○82-600 of the 13rd July 1982). In order to meet the needs of the French State, those of its clients, and its own income forecasts, CCR R&D department has developed impact models, since 2005, to estimate its exposure and to evaluate insurance damages caused by climatic events such has flood, drought and storm surge, in both deterministic and stochastic ways.
The strategy of CCR is to develop its own impact models for natural disasters in order to have control over each components of the model from hazard to damage, and to validate them using the available data and especially claims, collected since 1998, used for calibrating purpose.

Since 2015, the issue of the climate change impact on insured losses has been studied by CCR, in collaboration with Meteo-France regarding the scenario RCP 4.5.

In 2018 a new study has been led on RCP 8.5 and provided new elements about the future losses. The Arpege-Climat model has been run to simulate 400 years of actual climate and 400 years of future climate. The results of the future climate modelling were the input data of the CCR's cat models.

We are expecting an increase by 35% due to hazards (all perils previously listed) and by 15% due to concentration of assets in risk-prone areas.

In summary the loss ratio by 2050 is expected to increase by 50%.
This report and the related results will be presented in depth during the session.

Keywords: Climate

*Speaker
†Corresponding author: dmoncoulon@ccr.fr