Climate change and its impact on building water damage

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Abstract

The insurance industry, like other parts of the financial sector, is vulnerable to climate change. Life as well as non-life products are affected, and acquiring knowledge of future loss levels is valuable. Risk and premium calculations may be updated accordingly, and dedicated loss-preventive measures can be communicated to customers and regulators.

We have established statistical claims models for the coherence between externally inflicted water damage to private buildings and selected meteorological variables. Based on such models and downscaled climate predictions from the Hadley centre HadAM3H climate model, the estimated loss level of a future scenario period (2071-2100) is compared to that of a recent control period (1961-1990). On a national scale, payments increase by 15% and 20% under two different CO_2 emissions scenarios, but there is substantial regional variability. Of the uncertainties inherently involved in such predictions, only the error due to model fit is quantifiable.

Key words: Water damage, buildings, meteorological observations, climate model data, Generalized Linear Models, claims models, prediction.