

NOVEL USE OF CLIMATE MODEL DATA FOR DERIVING FUTURE FLOOD RISK UNDERWRITING PRICING DATA - A HONG KONG CASE STUDY

Rebecca Alexandre and Iain Willis

Rebecca.Alexandre@jbarisk.com; JBA Risk Management Ltd., UK

Motivation: As climate change-related financial risks increase, there is a need for tools to support economic resiliency. JBA Risk Management has pioneered use of Regional Climate Model (RCM) data for rapidly deriving pricing data, for multiple climate change scenarios and time horizons, for countries including Hong Kong.

Method: Daily temporal resolution precipitation and surface air temperature data from the Earth System Grid Federation's CORDEX experiment for three different East Asia climate models are analysed. The historical and future period RCM data are processed for Representative Concentration Pathways (RCP) 2.6 and 8.5, and time horizons 2046-2050 and 2076-2080. Pluvial and fluvial hydrological change factors are calculated and then applied to 30m resolution Hong Kong baseline flood map data to generate future flood risk metrics.

Impact: JBA's Hong Kong Climate Change Flood Pricing Data provide pluvial and fluvial flood underwriting data for residential and commercial lines of business. These allow insurers to directly quantify climate change-driven economic risks and implement mid-to long-term mortgage and financial management strategies.

Relative to baseline risks, RCP 8.5, 2076-2080, shows a 62% and 70% change in the cost of pluvial and fluvial damage for residential properties, respectively (Figure).

