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Estimating Flood Risk under Global Warming: An Approach from the Insurance Industry

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The (re)insurance sector has established methods and tools to assess historical and current risk for several weather driven hazards in many geographical regions. Using those same methods to estimate risk under global warming is fraught with challenges as one may expect complex changes to all four risk components (hazard, exposure, vulnerability, and disaster response capability).

Nevertheless, despite much uncertainty about how weather hazards may change under climate change, the insurance sector is increasingly expected to include risk estimates for future-looking business strategies. Supervisors (across different regulatory domains) are currently working with the insurance sector to better understand the transmission channels for climate risk and provide guidance on how to meaningfully estimate future risk due to weather driven hazards.

To encourage discussion and transparency on methodology used to assess risk for insurance purposes (such as developing underwriting layers, or portfolio management) we demonstrate a recent approach developed by the global (re)insurance broker Gallagher Re to estimate risk scores of future floods aligned, and therefore comparable, with current flood risk estimates. We demonstrate the approach for both pluvial and fluvial flood and discuss how challenges (such as those detailed above) were addressed to derive a methodology that can be deployed globally, given access to robust and credible projections of extreme precipitation and streamflow.