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Global Flood Model: Revolutionising Flood Catastrophe Modelling

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Catastrophe models are well established tools, traditionally used by the re/insurance industry to assess the financial risk to insured property ("exposure") associated with natural perils. Catastrophe modelling is challenging, particularly for flood perils over large geographical scales, for a number of reasons. To adequately capture the fine spatial variability of flood depth, a flood catastrophe model must be of high spatial resolution. To validly compare estimates of risk obtained from catastrophe models for different geographical regions, those models must be built from geographically consistent data. To compare estimates of risk between any given collection of geographical regions globally, global coverage is required.

Traditional catastrophe models struggle to meet these requirements; compromises are made, often for performance reasons. In addition, traditional models are typically static datasets, built in a discrete process prior to their use in exposure risk assessment. Scientific assumptions are therefore deeply embedded; there is little scope for the end user to adjust the model based on their own scientific knowledge.

This research presents a new and better approach to catastrophe modelling that addresses these challenges and, in doing so, has allowed creation of the world's first global flood catastrophe model.

JBA's Global Flood Model is facilitated by a technological breakthrough in the form of JBA's **FLY** Technology. The innovations encoded in **FLY** have enabled JBA to create a model capable of consistent global probabilistic flood risk assessment, operating at 30m resolution and supported by a catalogue of 15 million distinct flood events (both river and surface water). **FLY** brings a model to life dynamically, from raw flood hazard data, simultaneously addressing the user configurability and performance challenges.

Global Flood Model and **FLY** Technology will be of interest to those involved in financial, economic or humanitarian risk assessment, particularly in and between countries and regions not covered by flood catastrophe models to date. The detail of how they work will be covered here, and their power in facilitating consistent global flood risk assessment will be demonstrated.