

News Release

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Guy Carpenter Launches New Probabilistic Flood Model for France

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Guy Carpenter & Company, LLC, the leading global risk and reinsurance specialist, today announced that it has completed the development of a state-of-the-art probabilistic flood model for mainland France. The culmination of an ambitious research and development project that was started in 2008, the model involved collaboration with JBA Consulting (JBA), a hydrological and hydraulic modelling expert, and Intermap Technologies (Intermap), a global provider of high-quality 3-D digital elevation models.

By combining Intermap's high-resolution digital terrain model of mainland France with JBA's unique 2-D hydrodynamic modelling approach, Guy Carpenter's France flood model contains the most detailed and uniformly accurate set of countrywide flood hazard maps for the French territory currently available.

The new flood model integrates these state-of-the-art flood hazard maps into the next generation of Guy Carpenter's probabilistic model platform, providing clients with France's first countrywide probabilistic flood model tailored for reinsurance and risk-management purposes.

MODEL FEATURES

- The model incorporates flood boundary maps developed by JBA, which modelled over 80,000 km of the French river network using its 2-D hydraulic flow model, JFLOW-GPU, coupled with Intermap's uniformly accurate five-meter horizontal resolution digital elevation model for mainland France, produced as part of its NEXTMap® Europe program. The result is highly accurate flood plain boundary maps for the French river network, inclusive of water depths, for a range of return periods. Flood maps taking river defences into account have been produced for all urban areas.
- The model incorporates a stochastic event set, with 4,000 synthetic events that have been extrapolated from observed data, reflecting the temporal and spatial correlation of flooding events between river basins. The model equally incorporates a historic event set with the boundaries of 14 previous French flood events.
- The model considers non-riverine flooding that may occur both on- and off-plain due to groundwater fluctuations and pluvial flood. Modelling of groundwater and pluvial flooding has been carried out for 43 urban areas of France.
- The model's disaggregation module incorporates a high-resolution building stock database that allows the spatial re-distribution of exposures provided at a coarse resolution and also provides a representation of any structural detail missing in the input exposure data.

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- The damage module contains vulnerability functions for residential, commercial, municipal, agricultural and industrial business lines. The functions have been based on the flood hazard characteristics of flood depth and duration, in addition to demand surge following extreme events. Functions represent the building stock heterogeneity within individual business lines and secondary modifiers are included for certain lines (e.g., floor level situation).
- While the disaggregation module allows the treatment of low-resolution data, the model accepts data at all levels of resolution and equally accepts portfolio data geocoded at the address level.
- Model outputs include exceedance probability curves and detailed event-by-event loss tables. The model allows for the application of insurance terms from coverage to policy and deals with the impact of elaborate limit and deductible combinations.

QUOTES

Nick Frankland, CEO - European Operations, Guy Carpenter

“This new model, which represents a major step forward in our understanding of flood risk across France, is the result of several years of hard work by our team and partners. Leveraging the latest and best technology, this state-of-the-art solution provides the industry with a valuable and robust set of tools for flood risk assessment across the entire French mainland and will support our efforts to structure and place effective multi-line aggregate covers for our clients.”

Mark Weatherhead, InStrat® European Model Development Team, Guy Carpenter

“We are dedicated to providing the most accurate and up-to-date modelling tools available for the key geographies in which our clients operate. The groundbreaking features we have developed will allow companies to make better informed risk management and reinsurance decisions.”

Eddy Vanbeneden, Manager of InStrat® in Paris & Benelux Regions, Guy Carpenter

“The new France flood model provides one more step towards the provision of a complete set of probabilistic modeling tools that cover all of France’s natural catastrophe perils. We look forward to working with our clients in the assessment of their exposures and protection needs.”

TAGS/KEYWORDS

Guy Carpenter, France, flood, model, reinsurance, risk management, mapping

About Guy Carpenter

Guy Carpenter & Company, LLC is the world’s leading risk and reinsurance specialist and a part of the Marsh & McLennan Companies. With over 50 offices worldwide, Guy Carpenter creates and executes reinsurance solutions and delivers capital market solutions* for clients across the globe. The firm’s full breadth of services includes line of business expertise in Agriculture; Aviation; Casualty Clash; Construction and Engineering; Excess and Umbrella; Life, Accident and Health; Marine; Medical Professional Liability; Political Risk and Trade Credit; Professional Liability; Property; Retrocessional Reinsurance; Surety; Terrorism and Workers Compensation. GCFac® is Guy Carpenter’s dedicated global facultative reinsurance unit that provides placement strategies, timely market access and centralized management of facultative reinsurance solutions. In addition, Guy Carpenter’s InStrat® unit utilizes industry-leading quantitative skills and modeling tools that optimize the reinsurance decision-making process and help make the firm’s clients more successful. Guy Carpenter’s website address is www.guycarp.com.

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