



Rapid flood response for insurance assessment

Vanessa Balmbra, Philip Oldham, and Cameron Whitwham

JBA Risk Management Ltd, Business Development, United Kingdom (vanessa.balmbra@jbarisk.com)

Following the onset of flooding, many organisations, including the insurance industry, seek a rapid assessment, usually within 24-hours to a week, showing where has already flooded or may flood soon. For insurers, the sooner they receive the information, the more useful it is to them. This information allows them to assess the scale of the flood event and to respond accordingly; including increasing staff in their offices and in the affected area, deploying claims adjusters, and by estimating the potential loss associated with the flood event, assisting in settling insurance claims quickly.

Remotely sensed data can provide a capture showing the extent of a flood event, but external agencies rarely have the control to survey a flooded region at its peak, the data are not usually freely or quickly available and the spatial resolution can be poor. Furthermore, satellite imagery can show flood extents, but not flood depth information which becomes crucial when assessing damage and loss (greater depths relate to higher losses). An alternative, assuming adequate input data can be obtained (e.g. rainfall volumes/flow depths), is to build a hydraulic flood model and simulate flood extents and depths but doing this at a high resolution can take too much time.

JBA Risk Management have developed a staged methodology that overcomes these challenges and is being used to produce rapid flood responses anywhere in the world and at any scale of event, using recent examples including hurricane Harvey. Central to this methodology are pre-determined high-resolution flood hazard maps for a range of return periods ranging from 20 to 1,500-years. These maps, developed using 2D hydraulic modelling, contain extent and depth information and are used by the insurance industry for the pricing and underwriting of property-level insurance. Rapid flood event responses are derived by obtaining hydrological data from the event as it occurs (or immediately after) and relating it to the pre-determined flood hazard maps and the extreme value statistics used in their creation. Flood responses include: (1) flood lists which take only a few hours to produce and provide a list of localities (e.g. postcodes), likely to be affected during the event and; (2) flood event footprints which extract extents and depth information to provide more detail about the event. Improvements are made once the peak has occurred and as more data become available. Using the staged approach means that insurers always receive the latest information promptly.