

An Integrated Framework for Flood Damage Assessment of Buildings

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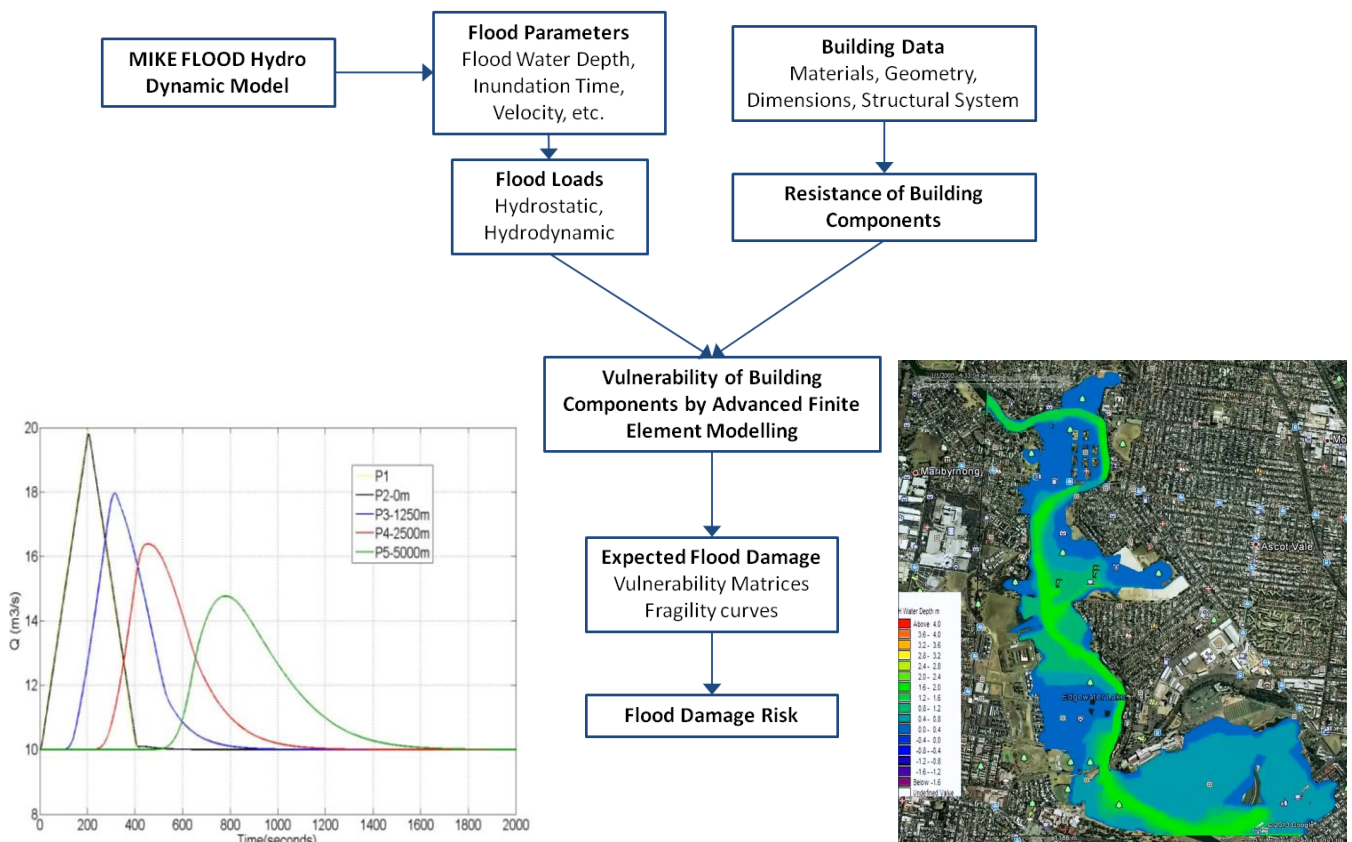
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Abstract: The effects of flooding are most striking in heavily populated or urban areas. Without sufficient advance warning and evacuation, dramatic consequences such as loss of lives and excessive damage to infrastructure, including possible structural failure of buildings could occur. In almost all models in use today, flood depth is treated as the determining factor for expected damage. However, effects of other parameters like velocity, duration, water contamination, precaution and warning time have been considered in rare situations for specific areas but not comprehensively studied.

This research is focused on developing a methodology to assess the vulnerability and flood damage risks of individual building components based on rational failure mechanisms simulated by Advanced Finite Element Modelling. Finally versatile fragility curves will be developed for some important building components. MIKE FLOOD, the leading software for flood plain modelling is used to conduct the hydro dynamic modelling in order to determine the forces acting on the building.

Research Framework



Floodplain Model