Accounting for uncertainty in the propagation of dam break flood waves in the Rhone River: from hazards to risks

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Abstract

The safety of large dams is commonly verified resorting to deterministic approaches, according to which a number of scenarios designed to represent the main ways in which the infrastructures may fail. Such approaches certainly provide valuable qualitative depictions of risk, but by no means quantitative ones. In fact, overall scenario probabilities are commonly unknown and a number of uncertainties neglected. Here, an inclusive Monte Carlo probabilistic approach in which aleatory and epistemic uncertainties are accounted for is explored. To accomplish it constraining computational challenges associated with dam break flood wave routing were addressed [1].

References