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# Uncertainty evaluation of flood risk assessment

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Flood risk assessment seems to be a very useful tool to optimize the flood control measures or their systems. Methods are usually based on the cost-benefit analysis where benefits are evaluated by the risk analysis which incorporates both the flood damage and its occurrence probability. The risk analysis is capable to evaluate the average yearly damage which consequently enters the cost-benefit analysis. The purpose of this approach is to answer the principal question about the economical efficiency of a flood control measure proposed which affects its realization. However, this significant decision can be strongly affected by the uncertainty of the flood risk analysis. This uncertainty is generally caused by three basic sources including (a) failure scenario uncertainty, (b) flood occurrence uncertainty, (c) flood damage assessment uncertainty. This contribution deals with the uncertainty evaluation of the flood risk assessment with the use of the probability concept and the Monte-Carlo simulation approach. The study presented quantifies the uncertainty of the average yearly damage with respect to the uncertainty of the flood flow frequency analysis and the flood damage assessment. Further, the probability properties of the average yearly damage are discussed.

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