



**RESOURCE**

# Detection of flood influence criteria in ungauged basins on a combined Delphi-AHP approach

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## Author(s)

Boulomytis, V. T. G. Zuffo, A. C. Imteaz, M. A.

## Description / Abstract

The prediction of areas susceptible to floods is essential for the protection of the population living in vulnerable conditions. It is only possible when the main contributing factors are pointed out. It is very challenging for hydrologists to run models when the input data are not representative. Alternative methods, such as the multicriteria decision analysis, represent a good solution for the simulation of future scenarios. However, the criteria selection affects the accuracy of the further modelling process. The purpose of the current study was to select and attribute scores to all the feasible criteria that contribute to flood susceptibility in the coastal plains of the Juqueriquere river basin, Brazil. First, the Delphi method was employed in the expert-based survey. Then, the root square judgement scale was adapted to an extended Analytic Hierarchy Process approach for the final allocation of priority values. Even though the initially ranked scores were within a limited range, the proposed methodology could adequately redistribute these scores in the final scale from 1 to 10. The consistency and sensitivity analyses revealed that the findings were coherent, providing the weight vector of the achievable criteria that affect the flood likelihood in the study area.

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