



## **A decision support system to calculate design flood peaks. Study area: Tensift Basin in Morocco**

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Morocco has a highly-variable hydrological context and is impacted by severe flood episodes, which have intensified in recent decades possibly due to the effects of climate change. This has caused the breakdown of hydraulic structures (culverts, bridges, dams ...), the deterioration of pavements and roads and to exceed the capacity of drainage structures. The aim of this project is to develop a Decision Support system (DSS) to guide the choice of the methods used to calculate design flood peak. The overall objective is to make the calculation of the parameters more precise and thus the design of hydraulic structures more accurate. This was done by calculating with great precision the characteristic parameters of the 15 sub-basins of Tensift and flow network parameters using GIS tools, and the re-adaptation and regionalization of the usual methods for estimating flood peaks using recent data.

The DSS is an IT platform developed to help choose the most suitable method according to available data, the type of the sized structure and the accepted hydrological risk. It is a valuable aid for both junior engineers and experienced hydrologists that provide technical and practical recommendations on the different steps, the parameters and data for calculating design flood peak in general and in the case of the Tensift basin. Indeed, the system presents the re-adaptation work carried out for the Tensift basin (characteristics, elaborated maps, calculated parameters, readapted empirical formulas ...). This platform will be an effective aid for sizing hydraulic structures which can be completed and generalized to cover other basins and other methods used in other countries.