



## **Hydraulic modelling for the rapid assessment of flooding problems in urban area: experimental application in a large urban catchment in Mediterranean Area**

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### **ABSTRACT**

The fervent urbanization process together with the on-going climate changes are favouring the occurrence of more frequent flooding phenomena all over the world. Although flood risk can never be completely eradicated, it becomes necessary try to reduce its effects by both improving the modelling of urban drainage systems and deepening the knowledge of flood producing storm rainfalls.

In particular this research dealt with the first aspect: in fact two different hydraulic models of the drainage system of the same monitored catchment, the Liguori catchment located in Cosenza (Italy), were compared. The first hydraulic model was developed by following the traditional hypothesis according to which the drainage system is composed only by the sewer system, whereas the second model was based on the innovative dual drainage approach.

Objective of the study was to demonstrate how conventional methodologies are not suitable for appropriately modelling the behaviour of urban drainage system, above all during extreme rain events. In fact the simulations performed underlined different water volume distributions only when the storm events surcharged the sewer network. Such outcome allows the successive adoption of different design solutions and, consequently, reduce different costs associated to the construction of new artefact or the maintenance of existing structures.

### **KEYWORDS**

Sewer flooding, Dual Drainage approach, AOFD