



## **Examining flood damage occurrence at the local level as a function of rainfall, based on insurance claims across an urban Mediterranean region**

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Flood-producing rainfall events often lead to material damage to buildings, vehicles, and infrastructure with a significant cumulative economic impact. Especially in urban areas, vulnerability to floods may vary at the local level, and so are the rainfall amounts likely to trigger flood damages. Insurance claims for flood damages can accurately indicate when and where these occurred. In the frame of the YANTAS project (project code:T2EDK-01108), a detailed insurance claims dataset of one of Greece's most important private insurance companies was used, combined with the dense surface weather station data provided by the METEO unit of the National Observatory of Athens. The aim was to model flood damage occurrence and identify the triggering rainfall thresholds at the local level across the Athens Metropolitan Area. Namely, we used eight-year rainfall observations from 66 meteorological stations and insurance claims on the postal code segmentation for the analysis. Logistic regression was applied to statistically model flood damage occurrence. We further applied the ROC curves to assess the performance of the binary response models and define optimal 24-h rainfall thresholds. The method is performed at the municipal level, as municipalities are the first administration level where decision-making to address the local risks for the citizens is needed. The rainfall thresholds were further classified to estimate and map the local risk of flood damages. The applicability of the detected thresholds in early-warning systems is also discussed.