

The Use of Hec Ras One-Dimensional Model and Geophysics for the Determination of Flood Zones

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Abstract : It is becoming more and more necessary to manage flood risk, and it must include all stakeholders and all possible means available. The goal of this work is to map the vulnerability of the Oued Derna-region Tagzirt flood zone in the semi-arid region. This is about implementing predictive models and flood control. This allows for the development of flood risk prevention plans. In this study, A resistivity survey was conducted over the area to locate and evaluate soil characteristics in order to calculate discharges and prevent flooding for the study area. The development of a one-dimensional (1D) hydrodynamic model of the Derna River was carried out in HEC-RAS 5.0.4 using a combination of survey data and spatially extracted cross-sections and recorded river flows. The study area was hit by several extreme floods, causing a lot of property loss and loss of life. This research focuses on the most recent flood events, based on the collected data, the water level, river flow and river cross-section were analyzed. A set of flood levels were obtained as the outputs of the hydraulic model and the accuracy of the simulated flood levels and velocity.

Keywords : derna river, 1D hydrodynamic model, flood modelling, HEC-RAS 5.0.4

Conference Title : ICFGHS 2021 : International Conference on Fluvial Geomorphology and Hydrological Sciences

Conference Location : Montreal, Canada

Conference Dates : August 05-06, 2021