



“Gheorghe Asachi” Technical University of Iasi, Romania



MODELLING THE SURFACE RUNOFF IN THE BARZAVA BASIN BASED ON GEOGRAPHIC INFORMATION SYSTEMS AND HEC GeoHMS

Codruța Bădăluță-Minda¹, Mihai Valentin Herbei^{2*}

¹*Department of Hydrotechnics, Faculty of Civil Engineering, Polytechnic University of Timisoara, G. Enescu Street, Romania*

²*Department of Sustainable Development and Environmental Engineering, Banat's University of Agricultural Sciences and Veterinary Medicine “King Michael I of Romania” from Timișoara, C. Aradului Street, Romania*

Abstract

In the last decades, the floods are more frequent and having increased intensity, both in Romania and worldwide. The process of estimating leaks in a river basin is extremely complicated and depends on several factors, including the meteorological and physical characteristics of the river basin. HEC-HMS hydrological simulation model is used to determine precipitation runoff from the river basin, using remote sensing and GIS tools. The results from the land pre-processing were used in HEC-GeoHMS to extract the hydrological parameters of the river basin. In this paper, the hydrographic method of the soil conservation unit was used to simulate the runoff rate, based on the precipitation recorded in the catchment of the Barzava River. After calibrating the hydrological model, the simulated discharges in the outlet section were close to the observed values.

Key words: catchment, GIS, HEC- GeoHMS, rainfall, runoff

Received: October, 2021; Revised final: February, 2022; Accepted: March, 2022; Published in final edited form: May, 2022

* Author to whom all correspondence should be addressed: e-mail: mihai_herbei@yahoo.com; Phone: +40722751782