O 134. CFD ANALYSIS OF FLOODING AND ASSESMENT OF FLOOD DAMAGES

Özgür Yilmaz[1], Muhammed Uçar[2], Şerife Yurdagül Kumcu[3], Gizem Bölük[4]

[1]*Undergraduate Student of Civil Engineering Department, Necmettin Erbakan University*
[2]*Research Asistant, Necmettin Erbakan University, Civil Engineering Department*
[3]*Assoc. Prof.Dr., Necmettin Erbakan University, Civil Engineering Department*
4 Msc. Student of Civil Engineering Department, Necmettin Erbakan University

E-mail: yurdagulkumcu@gmail.com

ABSTRACT: Floods are the main cause of natural disaster damage in the world after earthquakes. It is a fact that the topographic structure and precipitation regime in different geographic regions have caused flood disaster in many streams during different precipitation periods. Increasing in population growth and as a result of this increasing in the number of residential areas, improper city planning and urbanization, uncontrolled construction of water structures and increasing the number of settlements in the riverbed increase the loss of life and property of the flood event. In order to reduce the damages caused by floods, riverbed improvement and structures need to be regulated. For these reclamation studies, it is necessary to know the natural topography, the cross-sectional changes formed by the hydraulic structures on the stream (bridge, regulator, etc.) and the flood water level. Numerical computation methods can be used to make such calculations. In this study, the HEC-RAS numerical model was used in order to analyze of the flood occurred on 11.06.2018 in KONYA Köyceğiz Region. As a result of flood, residential areas on the stream bed, schools, the Köyceğiz Campus area was under the water flow. At the beginning of the study, the topographic map of the region was obtained, and a digital elevation model was created with ARC-GIS program and terrain cross sections were obtained by HEC-GEORAS. The obtained sections were transferred to the HEC-RAS program and the hydraulic characteristics of the floodplain were determined. The results obtained were compared with the images of flooding, which were obtained by taking photos during the flood time.

Keywords: Flooding, Flood analysis, HEC-RAS, Flood risk maps