

Integrated Hydro-BEAM, Remote Sensing and GIS for Flash Flood Modeling at Wadi El-Assiuti, Egypt

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In the arid regions, floods are a common natural disaster. Unfortunately there is often a lack of data on hydrological processes in arid regions. This limits the ability to understand the flash flood process. The present study aims to use the physical hydrological model of Hydro-BEAM (Hydrological River Basin Environmental Assessment Model) to simulate the flash flood as well as subsurface water flow at Wadi El-Assiuti in Egypt. Wadi El-Assiuti has been selected as a case study for the application. It is located between Longitudes 32°30' E & 31°12' W and Latitudes 27°48' N & 27°00' S. Geographic Information System (GIS) and Remote Sensing have been used to delineate the drainage system and watershed from the Digital Elevation Model (DEM). Due to the scarcity of observational data, computations are carried out where Remote Sensing data (GSMaP) were available using Hydro-BEAM to simulate several flash flood events at wadi EL- Assiuti. The proposed approach can be used by hydrologists to estimate wadi channel-transmission losses at any other arid region in the world.