



Flash Floods Simulation using a Physical-Based Hydrological Model at Different Hydroclimatic Regions

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Currently, flash floods are seriously increasing and affecting many regions over the world. Therefore, this study will focus on two case studies; Wadi Abu Subeira, Egypt as arid environment, and Karpuz basin, Turkey as Mediterranean environment. The main objective of this work is to simulate flash floods at both catchments considering the hydrometeorological differences between them which in turn effect their flash flood behaviors. An integrated methodology incorporating Hydrological River Basin Environmental Assessment Model (Hydro-BEAM) and remote sensing observations was devised. Global Satellite Mapping of Precipitation (GSMAP) were compared with the rain gauge network at the target basins to estimate the bias in an effort to further use it effectively in simulation of flash floods. Based on the preliminary results of flash floods simulation on both basins, we found that runoff behaviors of flash floods are different due to the impacts of climatology, hydrological and topographical conditions. Also, the simulated surface runoff hydrographs are reasonably coincide with the simulated ones. Consequently, some mitigation strategies relying on this study could be introduced to help in reducing the flash floods disasters at different climate regions. This comparison of different climatic basins would be a reasonable implication for the potential impact of climate change on the flash floods frequencies and occurrences.