

The Impacts of Extreme Flash Floods on the Archeological Sites: Case study, The Valley of the Kings, Luxor, Egypt

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In Egypt, most of practicable routes for highways roads, electric towers, infrastructures related to rural and urban areas and historic and monuments sites are constructed across Wadi. Flash floods, although infrequent 2 or 3 times every decade, can be extremely damaging and represent a threat to life as well as archeological sites. As a common practice to mitigate the floods in most of Egyptian, a combination of obstacle dams and detention dams at upstream and artificial lakes at downstream leads to a better issue of flood retention. Unfortunately, there is often lack of observational data and high quality data in arid regions. This limits the ability to understand the flash flood process and mitigate the impacts of flash floods. The main goal of this study is to assess the impacts of flash floods on the historical sites (ex. Tombs as shown in Fig. 1) at The Valley of the Kings, Luxor, Egypt, as well as proposing the efficient mitigation strategies. A physically-based distributed hydrological model of Hydro-BEAM (Fig. 2) is used to simulate wadi runoff and flash floods to evaluate the impacts of flash floods on these historical places. Additionally, remote sensing data GIS will be used for data preparation and processing. Mitigation procedures will be proposed based on the study. This study is expected to give an integrated mitigation approach for flash floods at historical sites in arid regions.

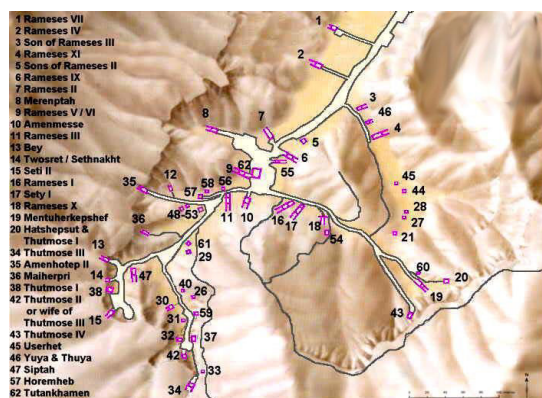


Fig. 1 The Tombs at the Valley of the Kings

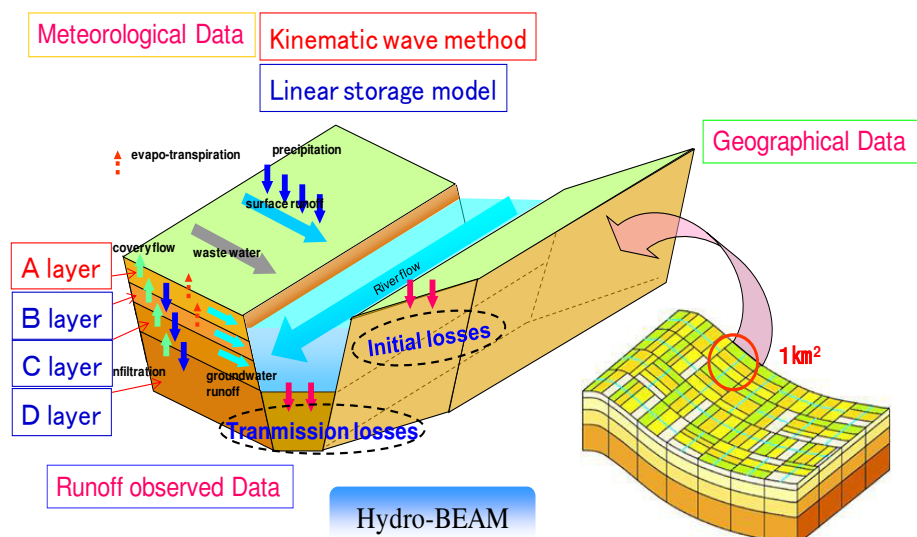


Fig.2 The model of Hydro-BEAM