

Abstract

In today world, it's essential to be prepared against unexpected events. It's necessary to be considered it more in a seismic country like Iran. So, the research aims to evaluate the seismic vulnerability of urban structure and planning a passive defense and locating shelter. In this study, it has been surveyed the areas of three cities in Zabol. The research method is descriptive-analytical and based on librarian studies, field surveys and data are analyzed using an adjunct software **of Karmaniya Hazard Model** which it works in **GIS** environment, the overlapping model is index and fuzzy logic. In present research, simulation has been done by **Karmaniya Hazard Model (KHM)**. The research results: 1-it's observed utilities have been located next to each other including incompatibilities in physical-spatial structure part of the city in eastern section of the area; 2-integrating hierarchical method with fuzzy overlapping in the passive defense planning part also represents that 5 chosen places for shelter in the form of 2 educational centers, 2 uncultivated lands and 1 religious place according to 2 square meters share of a local shelter space for each person, we face with lack of shelter space in all areas at the time of event; 3-in planning and locating shelter, among all tested methods, only overlapping maps of **Fuzzy Gamma ($\gamma = 0/9$)** and **sum** operators model (Linear) were suitable which their results represent that chosen areas by the operators, don't cover all sections of the area (west, south and north parts) and also, these places can't meet the whole population of the area.

Keywords: passive defense, unexpected events, city of zabol



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