

Seismic Microzonation and Site Effect Response of Al Auja District

Al-Aluja is one of the important Palestinian towns. The spatial distribution of the natural periods over a map is presented. It shows the important characteristics of soil deposit that will effect significantly the mitigation of the seismic risk impacts. The microtremors are very important and useful measurements in site response which could compensate the shortage and deficiency of the seismic recorded data, especially when there are missing seismic stations. The aim of this study is to prepare a GIS-based microzonation map of Al-Aluja area for the purposes of urban planning theme. The predominant natural frequency at each site within Al-Aluja area was determined using the Horizontal to Vertical Noise Ratio (HVNR) of the microtremor records. It was applied to about 80 points which covered the whole studied area. The impedance contrast of soil deposit of sediments shows distribution of frequencies and by using the outputs of these results, Al Aluja area is classified into four frequencies zones from 0.8 - 1.4, 1.4 - 2, 2 - 2.5 and 2.5 - 3.8 Hz. The results shows that the lower bound estimate of amplification factor for a soil site is from 2 up to 18 times using microtremor peak values.

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