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Seismic Site Effect Estimation Using Microtremor Studies in the Archaeological City Jerash in Jordan

Abstract This study is aimed to determine the local site effect by means of the horizontal-to-vertical (H/V) spectral ratios. The Nakamura's concept (Nakamura Y. 1989) is applied in JERASH city in order to determine the resonance frequencies and amplification factors for, finding the dynamic characteristics for structural engineering purposes. Results obtained in this study show that; dominant frequencies F varies between 2.35 Hz and 3.19 Hz in the archeological JARASH area, while, the amplification factor A varies between 0.87 and 23.47, which gives an indication that the structural culture in most localities of the study area might be seriously affected by any of eventually major short periodic earthquakes released by the nearby seismologic active sources westward, except of localities characterized by long periodic dominant frequencies of the study areas, considering that most structures of the study area are characterized by one to three story profiles.

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