A PRELIMINARY SITE RESPONSE IN THE NILE DELTA BASIN (EGYPT) USING MICROTREMOR H/V SPECTRAL RATIO

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For understanding the behavior of ground motion in the Nile Delta to mitigate the earthquake disasters the site effects are determined. The H/V spectral ratio technique as a low cost method is used. The microtremor (background noise) measurements are carried out at 24 sites distributed at the Nile Delta provinces. The obtained fundamental frequency values ranges between 0.821 and 2 Hz in all sites except at sites 15 and 18 which reveal frequency of 8.2 and 9.2 respectively. The low values represent thick sedimentary section and the high values illustrate an impedance contrast of soft sediments at shallow depth. Some sites demonstrate two peaks one at the low frequency and the other at the higher frequency. The preliminary evaluation of site effects at the Nile Delta basin demonstrates depth heterogeneity in the sedimentary section. The maximum value of ground motion amplification was found to be 5.1 at the fundamental frequency 1.3 Hz at site 22 (Demietta). The results demonstrate that the central part of the Delta is thicker than the eastern and western parts.

Microtremor, Site effect, Amplification

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