

Seismic attenuation of the clays of the west part of Mexico Valley Basin

Janeri Nava, Miguel Rodriguez, and Efraín Ovando

UNAM, Institute of Engineering, Mexico (janery.navab@gmail.com)

In this paper it is presented the comparison between the seismic damping of the clays of the east part of Mexico Valley Basin. The values of damping were obtained by direct, typical, testing of resonant column and the seismic surface waves technique, which measures the amplitude decay of the spectral amplitudes depending on the distance to get the attenuation factor (Q).

The computing of the amplitudes was made by cross-correlations of simultaneous seismic records of seismic environmental noise, these seismic records were recorded in 3 linear arrays of 24 vertical geophones, with natural frequency of 4.5 Hz. The maximum length of the linear arrays was 115 m.

The interpretation of the amplitude decay was made in terms of the model proposed by Liu et al., (2015) for the estimation of the seismic attenuation associated to the region between receivers, which requires the spectral amplitudes and the dispersion curve for the wave phase velocity. The damping values obtained with the surface wave seismic technique are between 3% and 4% for the bandwidth of 1 and 4 Hz. These values are similar to the estimated with the Resonant Column for small deformations of around 10^{-4} , suggesting that the seismic technique can be useful at least in the conditions that the experiment was done.