

APPLICATION OF SPECTRAL ANALYSIS OF SURFACE WAVE (SASW) METHOD IN SEDIMENTS OF SÃO PAULO BASIN

1MARCHIORETO, A., 1TAIOLI, F. 1 INSTITUTO DE GEOCIÊNCIAS DA UNIVERSIDADE DE SÃO PAULO, SÃO PAULO, BRAZIL

The spectral analysis of surface waves (SASW) waves method is a nondestructive method based upon the dispersive characteristics of seismic surface (Rayleigh) waves in layered media for evaluating the elastic properties and layer thickness of soils. The key steps involved are construction of an experimental dispersive curve from data collected in situ, and inversion of the dispersion curve to determine the shear waves profiles. A variation of velocity with frequency is called dispersion and arises because waves of different wavelength sample different parts of layered medium. The process, by which the shear waves profile is calculated from the field dispersion curve, is called inversion of dispersion curve. The SASW method offers some advantages of the method in comparison to the borehole and crosshole methods. It is performed from surface and utilizes a simple procedure and test setups, allowing appreciable cost and time savings. In contrast to borehole measurements, SASW testing samples a much larger volume of the subsurface, averaging the massive between the receivers used. The research involves development of method, including acquisition software, testing of field procedure with respect to source- receiver's geometry, and inversion procedure. Tests were performed at Sedimentary Basin of São Paulo, and the results are compared with borehole logging and crosshole results.