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Seismic Sites Using Microtremor Studies and Elliptical Curve Inversion of Horizontal-to-Vertical Spectral Ratio in Sleman, Yogyakarta

This study aims to investigate site conditions based on the dominant period and elliptical curve inversion of Horizontal-to-Vertical Spectral Ratio (HVSR). The data used as many as 20 sites, was taken using a seismometer portable short period in the span of a minimum of 50 minutes of data recording in the Sleman, Yogyakarta. The Nakamura method (Nakamura Y., 1989) as known as Horizontal-to-Vertical Spectral Ratio (HVSR) is used to obtain the value of the dominant frequency and amplification factor. The dominant frequency is changed to the dominant period which can indicate the type of soil. HVSR processing uses a guide from the SESAME Project. The results of processing 20 sites show that the dominant frequency ranges from 0.629 Hz to 15.298 Hz. While the amplification factor has a range of 0.015 to 6.613. The waveform can be inverted based on the elliptical curve of HVSR datasets to produce a velocity model. From the velocity model, we can know Vs30 to determine the type of soil too. From inversion process, Vs30 obtained has a range of 140 m/s to 2050 m/s. In addition, from the velocity model data obtained, it can be seen the sediment thickness in site.

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