

INTISARI

PEMETAAN MORFOLOGI *BEDROCK* DAN PERSEBARAN INDEKS KERENTANAN SEISMIC DI DAERAH LIWA BERDASARKAN DATA MIKROSEISMIK

BEDROCK MORPHOLOGY MAPPING AND SEISMIC VULNERABILITY INDICES DISTRIBUTION IN LIWA AREA BASED ON MICROSEISMIC DATA

Oleh

MBUE LASNI U MANIK

11/314058/PA/13756

Pengukuran mikrotremor telah dilakukan di daerah Liwa dan sekitarnya, Lampung Barat, Lampung. Pengukuran ini dilakukan untuk mengetahui morfologi *bedrock* dan persebaran indeks kerentanan seismik di Daerah Liwa. Pengukuran dilakukan menggunakan seismometer tiga komponen tipe Lennartz 0,2 Hz SARA sebanyak 66 titik pengukuran. Data dianalisa dengan menggunakan metode *Horizontal to Vertical Spectral Ratio* (HVSr). Hasil analisa HVSr menghasilkan frekuensi dominan dan amplifikasi. Kemudian menghitung nilai faktor kualitas, indeks kerentanan seismik, ketebalan lapisan sedimen dan ketinggian *bedrock*.

Berdasarkan hasil penelitian, diketahui nilai frekuensi dominan berkisar antara 0,72 Hz - 9,45 Hz. Nilai amplifikasi berkisar antara 2,33 - 6,10. Nilai faktor kualitas berkisar antara 1,40 – 6,38. Nilai ketebalan lapisan sedimen berkisar antara 11,65 - 158,62 meter dengan mengurangi ketinggian terhadap ketebalan diperoleh nilai morfologi *bedrock* antara 570,43 - 908,87 meter dan Nilai indeks kerentanan seismik berkisar antara 0,941 - 58,39 detik.

Hasil penelitian menunjukkan bahwa nilai faktor kualitas sebanding dengan nilai amplifikasi dan frekuensi dominan. Pada peta persebaran yang dihasilkan, nilai indeks kerentanan seismik yang tinggi berada di Kec Belalau Desa Kampung Sukarame, menunjukkan bahwa wilayah tersebut sangat rentan bila diguncang gempa bumi dan lapisan *bedrock* membentuk struktur cekungan di sebelah selatan daerah penelitian dan diduga terdapat sesar normal pada arah barat laut – tenggara.

Kata Kunci: *Mikrotremor, HVSr, ketebalan sedimen, Indeks Kerentanan Seismik.*

ABSTRACT

BEDROCK MORPHOLOGY MAPPING AND SEISMIC VULNERABILITY INDICES DISTRIBUTION IN LIWA AREA BASED ON MICROSEISMIC DATA

By

MBUE LASNI U MANIK

11/314058/PA/13756

Microtremor measurements have been conducted in Liwa and vicinity, Lampung Barat, Lampung. This measurement is performed to determine bedrock morphology and seismic vulnerability indices. The measurements using three components seismometer Lennartz type 0.2 Hz SARA at 66 points. The data analysis using Horizontal to Vertical Spectral Ratio (HVSr) method. The results of the HVSr analysis are the dominant frequency and amplification. Then the calculation of the quality factor, seismic vulnerability index, sediment layer thickness, and different bedrock height.

Based on the results of this research, the area has dominant frequency value about 0,72 Hz - 9,45 Hz. Amplification value about 2,33 - 6,10. quality factor value about 1,40 – 6,38. Thickness sediment layer values about 11,65 - 158,62 meter by reduction the elevation to the sediment thickness, we get the morphology of bedrock about 570,43 - 908,87 and the ground seismic vulnerability index value about 0,941 - 58,39 second.

The result of this research concluded that quality factor has linear relations with amplification and dominant frequency values. Based on the maps was made in this research, Kecamatan Belalau Desa Kampung Sukarame has highest value of the ground seismic vulnerability index, cause the research area was very vulnerable when hit by earthquakes, the bedrock formed basin structure at south of the area and the estimated that a normal fault in the northwest – southeast.

Key words: *Microtremor, HVSr, Ground Seismic Vulnerability Index, Sediment Layer Thickness*