

INTISARI

SEBARAN DAERAH POTENSI LONGSOR BERDASARKAN ANALISIS KETEBALAN LAPISAN LAPUK, INDEKS KERENTANAN SEISMIC DAN GROUND SHEARSTRAIN DENGAN METODE HVSR MENGGUNAKAN DATA MIKROTREMOR DI DESA MARGOYOSO KECAMATAN SALAMAN KABUPATEN MAGELANG

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Penelitian ini dilakukan di Desa Margoyoso Kecamatan Salaman Kabupaten Magelang dengan pengukuran mikrotremor di daerah rawan longsor, untuk mengetahui potensi longsor dari pemetaan ketebalan lapisan lapuk (h), indeks seismik (Kg), dan *ground shearstrain* (γ). Akuisisi data menggunakan seismometer tiga komponen, pengukuran dilakukan sebanyak 80 titik pengukuran. Data dianalisis dengan metode *Horizontal to Vertical Spectral Ratio* (HVSr).

Hasil penelitian menunjukkan bahwa di Desa Margoyoso memiliki ketebalan lapisan lapuk berkisar antara 9 sampai 102 m, sebaran nilai indeks kerentanan seismik berkisar antara 1,2 sampai 36,8 dan sebaran nilai *ground shearstrain* antara 1×10^{-4} sampai $3,1 \times 10^{-4}$. Dari nilai *ground shearstrain* yang diperoleh pada setiap titik pengukuran maka titik MK56, MK34, MK44, MK41 dan MK06 berpotensi mengalami fenomena tanah longsor, kompaksi tanah, serta likuifaksi ketiga terjadi gempa bumi.

Analisis selanjutnya adalah melakukan perhitungan dengan cara mengurangi elevasi permukaan di titik pengukuran dengan ketebalan lapisan lapuk untuk mengetahui morfologi *bedrock* di daerah penelitian. Berdasarkan klasifikasi masing-masing parameter yaitu parameter kelerengan *ground shearstrain*, dan ketebalan lapisan lapuk dengan analisis metode HVSr dapat dipetakan daerah potensi tanah longsor, kemudian memberikan skor dan pembobotan pada setiap parameter nilai kelas interval ancaman tanah longsor di daerah penelitian tersebut sehingga dapat diinterpretasikan dalam kategori potensi tanah longsor rendah, sedang hingga tinggi.

Kata Kunci: Mikrotremor, Bedrock, Ground Shearstrain dan HVSr

ABSTRACT

DISTRIBUTION OF LANDSLIDE POTENTIAL AREA BASED ON ANALYSIS OF WEATHERED LAYER THICKNESS, SEISMIC SUSCEPTIBILITY INDEX AND GROUND SHEARSTRAIN WITH HVSR METHOD USING MICROTREMOR DATA IN MARGOYOSO VILLAGE, SALAMAN DISTRICT, MAGELANG REGENCY

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This research was conducted in Margoyoso Village, Salaman Sub-district, Magelang Regency with microtremor measurement in landslide prone area, to know the landslide potential of mapping of sediment layer thickness (h), seismic index (K_g), and ground shear strain (γ). Using a three components seismometer, measurement was made from 80 measurement points. Data were analyzed by Horizontal to Vertical Spectral Ratio (HVSr) method.

The result of the research showed that in Margoyoso Village, the thickness of the overburden layer ranged from 9 m to 102 m, the seismic vulnerability index value ranged from 1.2 to 36.8 and the distribution of ground shearstrain value between 1×10^{-4} to $3,1 \times 10^{-4}$. From the ground shear strain values obtained at each point measurement MK56, MK34, MK44, MK41 and MK06 the use of landslide phenomena, earth compaction, and liquefaction occur.

The next analysis is to perform the calculation by subtracting the surface elevation at the measurement point by the thickness of the sediment layer to determine the morphology bedrock in the research area Based on the classification of each parameter, the slope parameter of ground shear strain, and the thickness of the weathered layer with the analysis of HVsr method can be mapped landslide landscape area, then give score and weighting on each parameter of class value interval of landslide threat in the research area so that it can be interpreted in category low landscape potential, moderate to high.

Keywords: *Microtremor, Bedrock, Ground Shearstrain, and HVsr.*