

Microseismic Analysis of Landslide-Prone Area in Ngroto, Purwosari Village, Girimulyo Subdistrict, Kulonprogo Regency

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ABSTRACT

This research was aimed to determine microseismic characteristics of landslide-prone area in Purwosari Village, Girimulyo Subdistrict, Kulonprogo Regency and their microzonation. The chosen area is a hill slope located in Ngroto area. The microseismic characteristics determination was conducted by field measurement of microtremor signals in the area. It took about 6 months to complete the research, which was started in February 2018 and ended in July 2018. The research began by collecting preliminary data (including geological information) and pre-survey of the area. Then survey design was designed to determine the exact location of the measurement points in the area. It used 33 measurement points with interval of 85 m. Based on the survey design, microtremor measurements were conducted for 30 minutes per point using sampling frequency of 100 Hz. The signals then were analyzed using HVSZ (*Horizontal to Vertical Spectral Ratio*) method to get the predominant frequency and amplification value. From these parameters, the microzonation of their value can be generated to get the distribution pattern of the value in the research area. Based on the results, the area has predominant frequency of 1,5 – 9,1 Hz and amplification factor of 2,8 – 9,6. From the value microzonation, the highest predominant frequency and amplification factor was located on the center of the area and was associated with ground movement.

Kata Kunci: *Landslide-Prone Area, Microseismic, Kulonprogo Regency*