Preliminary Study of the CTBTO’s Seismic Station Characteristics Using Spectral Analysis Method in Indonesia

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Abstract. We analysed recording waveform of six seismographic stations which is part of CTBTO’s seismic network in Indonesia. The analysis using the spectral analysis method conducted to determine the characteristics response of each seismographic station. We have background noise level of sites using Power Spectral Density (PSD) and Probability of Density Function (PDF). The result of spectral analysis indicate that PSI station (Parapat, Sumatera) has the lowest background noise level, so it has the highest Signal to Noise Ratio (SNR). This station has best recording of nuclear explosion and earthquake event compared to recording of other station. This good quality of recording signal because the seismometer located on the representative bedrock and the site good protected from the ambient or environmental noise. Otherwise, LEM station (Lembang, Bandung) has the highest background noise level and has lowest SNR. LEM station located near the Tangkuban Perahu Mountain that one of active vulcano in Bandung. Activity of the vulcano may create disturbance noise to the recording signal in Lembang station (LEM). The significance noise also may because of human activity around this site. We also conduct time frequency analysis by comparing frequency content between nuclear explosion and the earthquake event. The results indicate that explosion have more clear and focus of spectogram than that of an earthquake events, this characteristic can be used to identify nuclear explosion accurately.

INTRODUCTION

RESULT AND DISCUSSION

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REFERENCES