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Quality Assessment for Five BMKG Stations Included in the CTBTO International Monitoring System

Data quality assessments for five BMKG stations (PSI, LEM, BATI, SIJI, and JAY) which included as auxiliary stations in the CTBTO International Monitoring System have been conducted. The Probabilistic Power Spectral Density (PPSD) analysis was applied to determine the level of background noise around the sites to assess the reliability of sensor placements for seismic monitoring. Meanwhile, the data quality is assessed by identifying sensor misorientation to ensure that the seismometer is installed correctly. We analysed the PPSD using a 10-day three-component continuous waveform, and the results suggest that the background noise from five stations does not exceed the global noise threshold from Peterson (1993), with PSI having the lowest noise level and LEM having a relatively high level of cultural noise. Sensor orientation measurements show that PSI and BATI are misaligned by approximately 16 degrees, while SIJI, JAY, and LEM are oriented within 5 degrees of true north. This assessment indicates that these five stations remain able to be used for natural and artificial seismic monitoring. Data quality monitoring should be performed on a regular basis to verify that the sensors are in good enough condition to produce accurate data for further analysis.

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