KMA seismic stations assessment using portable seismometers

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KMA(Korea Meteorological Administration) currently operates 113 seismic stations in nationwide. They are composed of 1 very broadband station, 11 broadband stations, 31 stations having short period and accelerometer sensor together, 7 borehole stations having broadband and accelerometer sensor together, 62 accelerometer stations, 1 ocean bottom seismometer.

To properly monitor, analysis and issue the earthquake information, maintaining the qualified data-set is mostly important factor. Because the background noise recorded at seismometer exists at any seismic signal due to the natural phenomena of the medium which the signal passed through, reducing the seismic noise is very important to improve the data quality in seismic studies. But, the most important aspect of reducing seismic noise is to find the appropriate place before installing the seismometer.

KMA installs new seismic station and moves several sites every year to improve the signal reception rate and lower seismic noises from the raw data. To do that, right assessment of the site before installation is important to find the best spot for new seismic station. NIMR(National Institution of Meteorological Research) supports KMA to asses and evaluate the right place for potential seismic stations.

We recorded continuous seismic noise at 9 sites using portable seismometers in 2010. We processed the raw data to yield the background noise, and asseesed the subsurface soil sediment thickness. The soil thickness ranges from 5 to 29m. At Cheju islnads, we evaluated and assess the site characteristics if they are appropriate for seismic station.

We make the guidance book of all KMA stations which contain station monitoring environment, data quality, background noise and subsurface earth structure.