

## Seismic Interferometry using Hi-Net Data

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Seismic interferometry constructs Green's functions between two arbitrary points by taking cross-correlation of seismic traces observed at two locations. The Green's functions correspond to the wavefields as if an impulsive source was set at one location and seismic wave propagates from this source to the other receiver. Therefore if we use seismic interferometry, we can construct shot gathers from underground sources including natural earthquakes and apply seismic reflection processing to the pseudo shot gather.

Herein we adopt data provided by Hi-Net system for applications of seismic interferometry. In 1995, 'The Great Hanshin Earthquake' struck around Osaka and Kobe in Japan. After that, Japanese Government decided to construct high-density and high-sensitivity sensor network 'Hi-Net system' all over Japan in order to accumulate effective information of earthquakes and understand the earthquake mechanisms. Hi-Net system provides us much information origin time epicenter, depth, magnitude and waveform of each earthquake. We used waveforms recorded by Hi-Net system and generated pseudo shot gathers via seismic interferometry. Then, we applied conventional reflection analysis to these pseudo data and interpreted underground structures in Japan.