Change in AE waveform related to source nucleation and development (1) - Outline of experiments and procedure of PZT compensation

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Investigations using AE have contributed to progress of seismology, but there have been few studies on waveform analysis. Waveform analysis is one of the important methods in seismology, and some recent studies suggested that waveform show us the stress decrease prior to major seismic events. In order to confirm this, we started to analyze AE waveform obtained in laboratory experiments using the samples having fracture nuclei.

Frequency response of seismographs is sufficiently flat in a required band, while that of PZT used for AE measurements is not flat. Alternatively, laser Doppler velocitometer (LDV) gives a flat frequency response even in a high frequency band, though it cannot be used in a pressure vessel. Then, we made inverse filters for PZT using the waveforms obtained by LDV.