

## Characteristics of small-scale heterogeneities around the volcanic front in eastern Hokkaido

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There are many island-arc volcanoes in along a trench axis. A sharp boundary in the distribution of volcanoes in a fore-arc side is called a volcanic front (VF). VF is considered to be a boundary of small-scale heterogeneities including partial melting. We investigated small-scale heterogeneities around the volcanic front in eastern Hokkaido, using coda envelopes of high frequency (higher than 1 Hz). We analyzed 240 seismograms for six events recorded at 24 stations of the high sensitivity seismograph network (Hi-net) and a dense seismic network setup by the Research Group of Hidaka Collision Zone. We analyzed coda part with lapse time greater than 1.5 times the S wave travel times and the window is 15 seconds.

First, we estimated the relative site amplification factor (RSAF) of each station, using the coda normalized method with regional earthquakes of epicenter distance longer than 100 km. The following data processings were done after the correction of this relative site amplification factor. Next, we determined the coda amplification factor (CAF), that is, the amplitude ratio of coda waves on each source-station pair relative to the averaged coda amplitude over stations, for events within the studied region. We analyzed seismograms of six frequency bands with the center of 1, 2, 4, 8, 16 and 32 Hz and band widths of 0.25, 0.5, 1, 2, 4 and 8 Hz, respectively.

If heterogeneities are distributed uniformly in space, CAF should be unity. On the other hand, CAF lower than 0.3, heterogeneities (intrinsic attenuation) are supposed to be localized in region between source and station. We found non-uniform spatial distribution of CAF using deep earthquakes that occurred in the subducting Pacific-plate. CAF values in a frequency range of higher than 4 Hz are relatively small (CAF lower than 0.2) if a path traverses VF.