

## Determining Three Dimension Q - Attenuation Structure beneath Kyushu Island, Japan exerting Waveform - Spectra of Microearthquakes

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Kyushu Island, in South Part of Japan is characterized by subduction from Philippine Sea Slab and Eurasian Plate; volcanic front seen in islands arcs runs through the central part of Kyushu Island. Futagawa-Hinagu Fault zone lies in the middle of Kyushu, in which the seismic activity of shallow earthquakes is high. The fault is furrow from southwest of Aso volcano until Yatsushiro city, with the type of fault is right-lateral strike slip, this fault is one active fault in Japan. For investigation the 3D wave attenuation Q structure of the crust and upper mantle in Kyushu Island we examine the seismic wave spectra for micro earthquake (Magnitude 2.5 - 4.5) at regional distance of the Kyushu-Kumamoto seismic network.

Preliminary, we used selected waveform for spectra analysis concerning observe strong lateral heterogeneities, to estimate Q values by the spectral decay of the spectrum. We found indication of attenuation by comparing the similar events which recorded in the same station. Furthermore, by inversion method we would like to distinguish the difference between fore-arc zone and back arc zone around Kyushu Island, especially from the Philippine Sea Slab (subduction). A record of an event distance from the network suggest that high attenuation (Low-Q) is exposed under volcanic areas (in the crust and mantle wedge) along the central of Kyushu Island, and for low attenuation (High-Q) is showing the figure of subducting Philippine Sea Slab.

The variations in seismic attenuation can be attributed to a high attenuation (low-Q) zone in mantle underneath the volcanic area of Kyushu Area; it is formalize by performing a Q structure inversion. A fine-scale 3-D attenuation structure beneath Kyushu Island will obtained using a joint inversion for source parameter, site response and Q value (Tsumura, 2000).