

## Particle motion of S-wave coda in terms of energy partitioning (2)

# Hisashi Nakahara[1]

[1] Geophysics, Science, Tohoku University

Recently, the nature of coda waves attracts attention again in terms of the applicability of seismic interferometry. Nakahara (2007, JGU meeting) investigated particle motion (energy partitioning) of S-wave coda from local earthquakes for two stations of IWTH13 and IWTH17 of the Kik-net. In a 2-16 Hz band, subsurface receivers were found to be in an equal partitioning of energy into 3 components and surface receivers to obey a partitioning ratio which is expected for a homogeneous half space.

In this study, we have investigated the frequency dependence of the particle motion of S-wave coda in more detail. For frequencies between 2Hz and 6Hz, similar characteristics to Nakahara (2007) have been found. But at frequencies higher than about 6Hz, energy is less partitioned into vertical component than two horizontal components. This means that the 2-6Hz band had larger power in the 2-16Hz band and thus mainly contributed to the results of Nakahara (2007). This also means that low-velocity layers just beneath the surface have an influence not on 2-6Hz but on higher frequencies than 6Hz.

Nakahara (2007) succeeded in explaining the observed energy partitioning at the surface by a model that P, SV, and SH plane waves with an equilibrated P- to S-wave energy ratio are isotropically incident on the free surface of a homogeneous half space. The present results in the higher frequencies suggest that low velocity layers reduce the energy partitioning into vertical component, because body waves are incident on the surface with smaller incident angles. This has been confirmed by numerical calculations for a layered medium with seismic wave velocity estimated by the well logging. However, we have not yet explained the energy partitioning at the subsurface receivers by the model.

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