

# Study of characterization of Q structure by block inversion

# Ryoichi Nakamura[1]

[1] TEPSCO

Q structure by the block inversion Q beneath the Tohoku district (Nakamura and Uetake, 2004) is good agree with the  $V_p/V_s$  structure. It is thought that reliability is high. Though, Q structure of the Western Japan was also studied and obtained Low-Q zone beneath Wakayama prefecture (Nakamura and Sugahara,2003), but plate structure were thought to be complex and the obtained Q-values were unstable. So, the interpretation is tend to be difficult.

On the other hand, the Q values used in the strong motion prediction assumed homogeneous between the epicenter and the evaluation point in many case.

It is thought that it is difficult to apply Q structure by the block inversion to the strong motion prediction for an influence of Q structures heterogeneity.

Making to the characteristic assumed to be the same in a certain area has come to be done about heterogeneous of the fault such as asperity.

It is thought that it is preferable to execute making to the characteristic in the area thought to be the same to be able to use Q structure easily.

In this study, we tried to obtain characterization of Q structure at in each layer (0-30km, 30-60km,60-90km) from Nakamura and Sugawara's (2003) Q structures. The calculation area is east longitude 131-138, and north latitude 31-36.

As a result, the following relations were obtained in 1-10Hz.

Layer1 (0-30km in depth)  $Q=260f^{0.5}$

Layer2 (30-60km in depth)  $Q=140f^{0.6}$

Layer3 (60-90km in depth)  $Q=95f^{0.8}$

The following result was obtained from the data of 3-10Hz.

Layer1 (0-30km in depth)  $Q=280f^{0.4}$

Layer2 (30-60km in depth)  $Q=135f^{0.6}$

Layer3 (60-90km in depth)  $Q=80f^{0.9}$

Q-value for Layer1 (crust) larger than those of Layer2 and Layer3.

LowQ in the vicinity of Wakayama became a level below the half of the average of Layer1.