On March 20, 2005 the West Off Fukuoka Prefecture Earthquake (Mj=7.0) occurred in the northern Kyushu, Japan. Several studies revealed characteristic of aftershock activity and inhomogenous structure in the focal area. However, the structure with scale length less than 1 km was not always resolved. In order to understand a mechanism of inland earthquakes, it is necessary to investigate inhomogeneous structure around a focal region. The purpose of this study is to estimate the distribution of scatterers around the focal region based on seismic array observation.

We used seismic records of events in an earthquake cluster and applied array signal processing to them because the records had similar waveforms to each other. In addition, the seismograms obtained by a receiver array installed in the aftershock area were also analyzed Slant-stacking and other array signal processings were applied to the S-coda part of waveforms for frequency band from 4 to 16 Hz. Based on the single scattering assumption, the stacked data were back-projected to three dimensional spaces. Moreover, we simultaneously analyzed both of data from the events and receiver arrays to resolve fine structure. Then, we obtained spatial distribution of S-wave scatterers. The scatterers distribute around the largest slip area of the main shock. The strong scatterers were also located at the SE-extension and SE part of the fault. At the SE-extension of the fault, there is another active fault which has not been ruptured yet, suggesting that the strong scatterers could act as barrier of the main shock faulting.