

Three dimensional velocity structure around aftershock area of the 2004 Niigata-ken Chuetsu Earthquake (M6.8) by the DD tomography

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The 2004 Niigata-ken Chuetsu Earthquake with M6.8 occurred in north of the central part of Japan. It was a reverse fault by the regional compression stress field in NW-SE direction. Several aftershocks with Magnitude greater than 6 were occurred. There are plural fault planes of the large aftershocks parallel and perpendicular to the fault of mainshock. We estimated three dimensional velocity structure around the aftershock area of the earthquake by using Double Difference tomography method. The arrival time data are picked up from the seismograms at the deployed seismic stations by the joint observation between Kyoto and Kyushu universities, NIED, ERI, and JMA. The velocity structure were generally indicated that low velocity zone exists in northwest part of the aftershock area. The velocity in the southeast becomes opposite sense. This results showed a correspondence to the geological structure. Moreover, the fault plane of the main shock was located the velocity boundary. Initiation point of the rupture of the main shock, the largest aftershock, and the event on the conjugate fault are located in the low velocity region.