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Aftershock sequences and velocity structure in the focal region of the 2004 Mid Niigata prefecture, Japan earthquake

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A small array of portable seismographs was provided to the central part of Niigata prefecture to determine aftershock locations of the 2004 Mid Niigata earthquake and crustal structure of the region. In this preliminary study we determine 861 aftershocks by the Joint Hypocenter determination method, and tomographic investigation is also conducted. The well-determined aftershock locations show the complexity of the fault system, not only dominant fault (dipping to northwest) but also conjugate one. This complexity may indicate the evolving condition of new-born plate boundary in the Niigata-Kobe high-strain rate band. The three-dimensional velocity structure shows good correlation to the other geological features, such as the distribution of sedimental plane and locations of aftershocks.

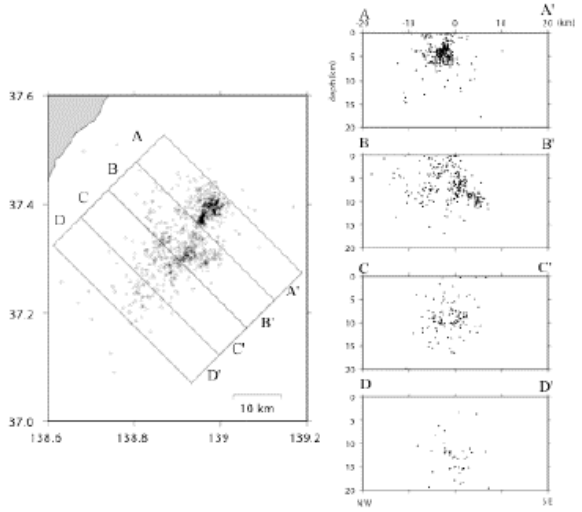

Fig.1. Detailed cross sections of the aftershock distribution perpendicular to the general fault strike.