

Detailed seismic velocity structure around the focal area of the 2000 Western Tottori earthquake by Double-Difference tomography

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A shallow inland earthquake (M7.3) occurred on Oct. 6, 2000 in the western part of Tottori Prefecture, southwestern Japan. This event occurred along a left-lateral strike-slip fault.

We obtained a detailed 3D seismic velocity structure in and around the focal area and aftershock distribution of the 2000 Western Tottori earthquake by the double-difference tomography method [Zhang and Thurber, 2003]. We used the travel time data by The Joint Group for Dense Aftershock Observation of the 2000 Western Tottori Earthquake from the temporary seismic stations by The Joint Group for Aftershock Observation and the permanent stations of Kyoto University, Tokyo University, Japan Meteorological Agency, and Hi-net.

The obtained velocity structure along the fault is very heterogeneous. P-wave velocities are higher in southern part, in particular in and around the asperity of this event [e.g. Iwata and Sekiguchi, 2001; Yagi, 2000]. The preceding seismicity areas in 1989, 1990, and 1997 [Shibutani et al., 2002] correspond to a low P-wave velocity area.