

## Source process of the 2007 Chuetsu-oki earthquake inferred from far and near field waveforms and geodetic data

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The far field waveforms, strong motion and geodetic data are individually inverted for the source process of the 2007 Chuetsu-oki, Niigata, earthquake with a fault plane which is configured in reference to re-determined aftershock distribution (Shinohara et al., 2008). Every result shows a common characteristic, a small slip area is recovered near the hypocenter and a larger one exists in the south-western part of the fault plane. It seems that the observed strong motion waveforms, which are complex and involve some clear pulses, reflect the determined source process. However, in detail, the position and maximum slip of the asperity near the hypocenter are different among these models.

Before the source process inversion with strong motion waveforms, we determined 1-D horizontally stratified velocity models using the waveform inversion method (Hikima and Koketsu, 2005). However, degree of coincidence between the observed and synthesized waveforms is not so good in some stations. These stations are situated on a plain with thick deposits or near boundary between a plain and hill and the observed waveforms are affected by the complex subsurface structures. So it may be difficult to determine more precise and detail slip distribution with 1-D velocity model. We have to make more realistic velocity models.

However, a joint inversion using different data sets has possibilities to reduce the shortage of each datum. We will present the result of the joint inversion and discuss the cause of the observed strong motion data.