

## Source rupture process of the 2011 Northern Nagano earthquake (Mj 6.7) based on strong-motion records

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The slip distribution model of the March 12, 2011 Northern Nagano earthquake (M6.7) were estimated by assuming the multiple fault planes model based on the aftershock hypocenters detected from the high-dense seismometer array and the crustal deformation information derived by the interferometry synthetic aperture radar (InSAR). Since the strong-motion record with peak ground acceleration more than 700 gal was obtained at the K-NET station NIG023 near the main shock, it is important to investigate the geometrical relation between the strong motion generation area (SMGA) on the main shock fault and the observation station. Estimated source model displays the largest slip near the K-NET NIG023 and beneath the existing anticlinal structure. The reverse fault motion of this event is considered to contribute the growth of the anticline. On the other hand the secondary fault plane, which was recognized clearly from the crustal deformation data inferred from InSAR, released relatively small or negligible amount of the moment according to our examination. It might have been the deformation caused by the aftershock occurring just after the main shock.

Keywords: 2011 Northern Nagano earthquake, Source process, Strong ground motion, Inversion analysis, InSAR, Anticlinal structure