

## Stress field in the source region after the 2007 Niigataken Chuetsu-Oki earthquake and its relation to the mainshock rupture

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A stress field in the source region after the 2007 Mw 6.6 Niigataken Chuetsu-oki earthquake was investigated based on aftershock focal mechanisms. Because this earthquake occurred at offshore, where station coverage is poor, we attempted to determine aftershock focal mechanisms using P-wave polarity data as well as body wave amplitudes. The approach permits us obtain 76 well-determined aftershock focal mechanisms which occurred during two weeks after the mainshock. In addition to thrust faulting aftershocks that are similar to the mainshock, we find that many aftershocks with large strike-slip components and some normal faulting aftershocks occurred across the entire region.

In order to investigate the stress field in and around the source region after the mainshock quantitatively, we applied the stress tensor inversion. A stress tensor inversion method indicates that the stress field spatially varies on a scale smaller than its fault dimension and that some stress heterogeneity exists around the central region of aftershock area. It is well known that the stress field in the studied area is characterized by a thrust-faulting regime. However the stress tensor inversion method reveals that the stress field after the mainshock became a mixture of the strike-slip and thrust faulting regime. These evidences suggest that the stress release associated with the 2007 earthquake perturbed the stress field in the source region.

Acknowledgements. Seismograph stations used in this study include permanent stations operated by NIED (Hi-net), JMA, ERI and Tohoku University. We are grateful to JMA for the P- and S-phase arrival time readings as well as hypocenter list.