

## Stress fields and fault structures in the western Tottori and northern Hyogo swarm

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We conducted stress tensor inversion for two series of earthquake activities in SW Japan using regional moment tensor solutions. One is the 2000 western Tottori earthquake (Mw6.6) and its aftershocks. Another is northern Hyogo Swarm activity. In each case optimal stress fields were estimated for whole data set and for different subsets grouped by regions. We discuss the relationship between the estimated stress field and fault structure inferred from epicentral distributions and regional subset of each dataset by stress tensor inversion. Based on estimated stress fields and epicenter distribution, the relation between stress field and fault structure are discussed.

For the western Tottori case, observed data set can be satisfied by homogeneous stress field (shmax direction N107E) within aftershock area, although non-uniqueness is found for the solution of northern region. Two solutions are possible in northern area. Additional solution with the shmax direction N128E. In the northern area, trend of the epicenter distribution also change. Thus, we choose homogeneous stress field, frictional property becomes heterogeneous corresponding to trend change of epicenter distribution, inversely if we choose heterogeneous stress field, no heterogeneity is required for frictional property. We prefer homogeneous stress model because of lower stress ratio is not practical for heterogeneous model. For the Northern Hyogo case, four results of stress tensor inversions including sub regions show shmax direction between N110E and N130E. These directions lay between two trends of the epicenter distributions, thus two trends may behave as a conjugate fault system. Variety of the focal mechanism relative to estimated stress field is abundant in northern Hyogo case compared with Tottori case. Frictional property and stress field may have a possibility of heterogeneous.

We might say that the stress field estimated by our present method, reflect the field of tectonic stress from the macroscopic point of view. Our stress field solutions for two series of earthquake activities are in good agreement with those obtained with the traditional shear angle assumption for other large events occurring in nearby areas.