

## Spatiotemporal stress change concerned with Tohoku-Oki Earthquake derived from the seismicity rate in off southern Tohok

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Using a method of Dieterich (1994), we estimated spatiotemporal evolution of Coulomb stress in and around the subducted Pacific (PAC) plate and Philippine Sea (PHS) plate in off southern Tohoku and Kanto district from the analysis of seismicity rate.

Our results show that the Tohoku-Oki Earthquake extensively perturbed Coulomb stress in the PAC and PHS plates. In a previous study, Uchida et al.,(2009) suggested that an interplate coupling between the PAC and PHS plate becomes weak in the southern part of northeastern edge of the PHS plate. In our results, however, large stress change was seen in this region during March 2011. We also found that such region showing large stress change have been moving southward for several months. After March 2011,  $M > 5$  earthquakes occurred near the region which had stress change in March 2011. Widespread large stress change are considered to be related to occurrence of  $M > 5$  earthquakes.

Next, we determined focal mechanisms of earthquakes which occurred in the study region. For some events after Tohoku-Oki Earthquake, P and T axes' direction of the focal mechanisms were different from those for the events before mainshock. The regions where mechanism trend varied before and after the Tohoku-Oki Earthquake seem to coincide with the regions where large stress change was observed.

Keywords: Tohoku earthquake, Stress change, Aftershock