

# Focal mechanisms of the double seismic zone in the Pacific plate, off Boso: Temporal change after the 2011 Tohoku EQ

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## 1. Introduction

The Pacific plate and the Philippine Sea plate subduct off the Boso Peninsula, and the Pacific plate has a double seismic zone at this place (e.g. Terada et. al., JpGU, 2016). Sato et. al. (JpGU, 2018) revealed that most focal mechanisms for the lower surface events have down-dip extension before the 2011 Tohoku EQ, and down-dip compression during 3 months after the EQ using land and ocean bottom seismic observations. This presentation shows 1 year temporal change of focal mechanisms for the double seismic zone's events after the 2011 Tohoku EQ.

## 2. Data and analysis

The used data are waveform data from Hi-net by NIED, and the aftershock survey of the 2011 Tohoku EQ using ocean bottom seismometers (2011/3/15-2012/3/31). We select events in the double seismic zone, and pick polarities of the P wave first motions. We calculate emergent azimuth and dip of each event-receiver pair using a 3D structure determined by Terada et al. (JpGU, 2016), and search optimal focal mechanisms using a grid search method.

## 3. Results

During 1 year after the 2011 Tohoku EQ, most focal mechanisms have down-dip compression for the upper surface events. For the lower surface events, on the other hand, most focal mechanisms have down-dip compression by July, 2011, and many mechanisms have down-dip extension after September, 2011. This may indicate that a compressional stress change occurred at the depth of the Pacific plate just after the 2011 Tohoku EQ, because the EQ moved the Pacific plate downward at the shallower part, and compressed the deeper part of the plate. After that, the compressional stress may had relaxed about a half a year.

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Keywords: Double seismic zone, temporal change of focal mechanism, the Pacific plate, off the Boso Peninsula, the 2011 Tohoku Earthquake

