

2011年東北地方太平洋沖地震の海溝軸近傍の余震活動 Near-trench aftershock activity of the 2011 Tohoku-oki earthquake

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After the 2011 Mw 9.0 Tohoku-Oki Earthquakes, normal-fault type aftershock activity have been observed both in the overriding plate and incoming/subducting Pacific plate near the trench axis [e.g., Asano et al., 2011]. Several tens of meters slip along the plate boundary occurred near the trench axis during the 2011 Tohoku-Oki earthquake [e.g., Fujiwara et al., 2011]. This large co-seismic displacement reached to the trench axis. The normal-faulting aftershocks near the trench axis are likely caused by a tensional stress due to such large slips along the plate boundary. Detail distribution of the aftershocks near the trench axis and their focal mechanisms are important information for considering the large co-seismic displacement along the plate boundary reaching to the trench axis and crustal structures near the trench axis.

We conducted ocean bottom seismograph (OBS) observations using 10 OBSs near the Japan Trench from August to October 2011. These OBSs were deployed on the landward slope including the area, where the several tens of meters co-seismic displacement was observed, with approximately 10 km separation in horizontal. In addition to these OBSs, we used OBSs deployed for aftershock observations continued from soon after the 2011 Tohoku-Oki earthquake [Shinohara et al., 2011]. Preliminary results of the hypocenter locations show that several earthquakes occurred within the overriding plate. These earthquakes may relate to the normal fault system in the overriding plate. On the other hand, other earthquakes are located mainly in the subducting oceanic crust. We will discuss relationships among aftershock activity near the trench axis, crustal structures obtained from the active seismic surveys, and large co-seismic displacement reaching to the trench axis.