

## Postseismic seafloor movements associated with the 2011 Tohoku Earthquake detected by GPS/acoustic geodetic observation

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The Hydrographic and Oceanographic Department, Japan Coast Guard, have been developing precise seafloor positioning systems using the GPS/acoustic combination technique and carrying out campaign observations along the major trenches in the Pacific Ocean, such as the Japan Trench and the Nankai Trough. For example, after the 2011 off the Pacific coast of Tohoku Earthquake ( $M_w = 9.0$ ), we detected a huge coseismic displacement of 24 m toward ESE at the MYGI site. The geodetic observations along the Japan Trench continue in order to detect postseismic deformation.

As the results of observations (the latest results are in the end of 2012), the decreasing motions toward ESE have been detected at the CHOS site and the FUKU site, which seem to be caused by the after-slip of the earthquake.

On the other hand, the motions toward WNW have been detected at the MYGI site, the KAMS site and the KAMN site, and the motion toward S has been detected at the MYGW site. Especially, at the MYGI site where the largest coseismic displacement among JCG's sites had been detected, 22 cm displacement was detected during 30th August 2011 to 12th December 2012 (in this period, a notable aftershock had not occurred near the MYGI site).

Besides, using these crustal motion results on the seafloor and on the land, we have estimated the slip inversion model after the mainshock in the same method as in Yabuki and Matsu'ura (1992). The slip model shows that the slip in the seaward region is to be the landward slip in spite of the seaward slip in the other region.

In this presentation, we will report the newest results of the seafloor geodetic observation along the Japan Trench, and also will show the slip inversion model using the newest geodetic data.

Keywords: seafloor geodetic observation, the 2011 Tohoku Earthquake