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2011 年東北地方太平洋沖地震により動的に誘発された九州地方の地震
Dynamic triggering of earthquakes in Kyushu during the passage of seismic waves from the 2011 Tohoku earthquake

福井 海世 [1*], 小林　励司 [1], 後藤　和彦 [2]
FUKUI, Miyo[1*], KOBAYASHI Reiji[1], GOTO Kazuhiko[2]

[1] 鹿児島大学理学部地球環境科学科, [2] 鹿児島大学大学院理工学研究科附属南西島弧地震火山観測所
[1]Department of Earth and Environmental Sciences, Faculty of Science, Kagoshima University, [2]Nansei-Toko Observatory for Earthquakes and Volcanoes, Kagoshima University

During the passage of waves from the 2011 off the Pacific coast of Tohoku earthquake (Mw 9.0) (hereafter, the 2011 Tohoku earthquake), early post-earthquakes were observed over the Japanese Islands (Miyazawa, 2011). In Kyushu, local events were also observed at that time. Such events have already been detected and located (Enescu et al., 2011; Hirose et al., 2011; Miyazawa, 2011; Obara and Matsuzawa, 2011). In this study, we detected triggered earthquakes more carefully. We then located hypocenter and tried to determine the focal mechanism solutions by using the P-wave polarities.

We detected events from seismograms recorded at 142 stations of Kagoshima University, Kyushu University, the Japan Meteorological Agency, and Hi-net in Kyushu. The time window is between 14:52 and 14:59 (JST) when the body and surface waves from the 2011 Tohoku earthquake run though Kyushu. The dominant periods of the body and surface waves from the 2011 Tohoku earthquake are much longer than those of the waves of local events because of higher attenuation of shorter-periods components for long-distance propagation (˜1600 km). We tested several filters preliminarily, and we chose a band-pass filter of 16-32 Hz, which help us to pick arrival times of body waves easily. We used the HYPOMH program (Hirata and Matsu'ura, 1987) for hypocenter location with a 1D velocity structure model which is used for the routine hypocenter determination in Kagoshima University. We determined the focal mechanisms by using a program developed by Kobayashi and Nakanishi (1994).

We detected more than 30 earthquakes, and estimated 14 hypocenters and 4 focal mechanisms. These events distribute volcanic and high seismicity areas. This result is consistent with Miyazawa (2011). The focal depths
are shallow. The focal mechanisms differ from those of the background seismicity. We infer that the dynamic stress changes due to the seismic waves may differ from the background stress field.