

Tremor activities beneath the Hinagu fault zone (2)

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Non-volcanic tremor induced by dynamic stresses has been detected in the Hinagu fault zone (Chao and Obara, 2015). We notice that the tremor occurred at the deep extension of the fault zone (Miyazaki et al., 2015). In addition, from the velocity structure estimated by seismic tomography (Matsubara and Obara, 2011), there are low P-wave velocity zone at the deep part of the source region and high P-wave velocity anomaly in the shallow seismogenic zone. Therefore, the tremor is possibly occurred in the transient zone between the seismogenic zone and the ductile lower crust (Miyazaki et al., 2015).

The existence of the "ambient" tremor is a clue to understand the source process. In previous study, we applied the matched filter technique (Gibbons and Ringdal, 2006) to the continuous seismic records and recognized some small tremor activities (Miyazaki et al., 2014, SSJ). In this study, we report the results from other template events that were detected in the previous study and characterized by apparently short duration compared with triggered tremors.

We also tried to estimate magnitude-frequency relation of the detected events. Magnitudes were distributed between -0.4 and -1.0. However, most detected events had low signal-to-noise ratios. The b-values of tremor activities are relatively higher than that of shallow earthquake activities.

In addition, we found several tremor burst episodes. Its typical time constant was several ten minutes. Detected signals during the burst had not large amplitude and sometimes they were comparable with noises. The rise of amplitude with long duration like ambient tremor discovered in the plate boundaries (Obara, 2002) were not seen clearly. That might be from small slip area that was characterized by high V_p/V_s ratio compared with plate boundaries (Shelly et al., 2006; Matsubara and Obara, 2011).

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