

Relation between Temporal Variation of b-value and Recurring Slow Slips off Boso Peninsula: Part 2

Fuyuki Hirose^{1*}, Kenji Maeda¹

¹Meteorological Research Institute

Hirose & Maeda (2012, JpGU) investigated a relation between temporal variation of b-value of the G-R law (Gutenberg and Richter, 1944, BSSA) and stress change associated with slow slip events (SSEs) around Boso peninsula. They interpreted their result as follows by considering the inverse correlation between b-value and stress obtained in laboratory experiments (Scholz, 1968, BSSA):

1) Because a coupling rate is low in the period of no SSEs in the area where swarm earthquakes occur, stresses applied to the region becomes also low. Therefore, b-value becomes large.

2) Seismicity activates at the north edge of the SSE area because stresses increase around the SSE area according to an occurrence of SSEs. In this situation, b-value decreases because of high stress.

3) After that, because SSEs converge within a week or 10 days, stresses applied to adjacent area around SSEs decrease gradually. A b-value increases gradually with decrease of stresses and has a peak value before next SSE.

They used JMA catalogue in the period of 1990/1/1 ? 2011/12/31 with $M \geq 1.5$ and Depth ≤ 40 km, and relocated hypocenters by Double-difference (DD) method (Waldhauser & Ellsworth, 2000, BSSA). And they calculated temporal changes of b-value using events that may occur near plate boundary.

On the other hand, we obtained seismic waveform data after August, 2002. We will relocate hypocenters precisely using both methods of waveform cross-correlation and DD and retry to calculate temporal changes of b-value. We will report our result in the session.

Keywords: Boso peninsula, slow slip, b-value, stress, temporal change, waveform cross-correlation