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Stress evolution on the plate boundary thrust fault in eastern Taiwan.

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We investigate the stress evolution and the spatial-temporal variation in seismicity along a plate boundary thrust fault in eastern Taiwan. Three clusters of earthquakes were found in the east-dipping seismogenic zone near the Chengkung area in eastern Taiwan. Each earthquake cluster has a characteristic event with moment magnitude greater than 6.0 and attitude similar to the east-dipping thrust fault. The stress evolution on the fault plane was modeled by an incorporation of long-term tectonic loading from the plate motion, aseismic creep loading, and the static stress transfer after earthquakes. Our primary result shows that a seismicity gap in the middle section of the seismogenic zone prior to the latest earthquake cluster was transforming from a barrier to an asperity by stress enhancement due to preceding earthquake clusters.