

## Generating properties of earthquakes induced by water injection experiments at the Nojima fault, Japan

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After the 1995 Hyogo-ken Nanbu (Kobe) earthquake, a scientific drilling program called the Nojima Fault Zone Probe was carried out the Nojima fault which ruptured during the earthquake. In 1997 and 2000, water injection experiments were carried out to measure the fault-zone permeability and its temporal change. About 4-6 days after the beginning of water injection, we observed the increase of ultra-microseismicity. We suppose that these earthquakes were induced by water injections. It is important to detect the difference of triggering characteristic between natural earthquakes (stationary activities) and induced earthquakes for understanding the generating process of earthquakes. The following properties has been estimated for the microseismicities induced by water injections: (1) clustering of hypocenters is more dominant than stationary activities (e.g. Tadokoro et al., 2000; Nagai et al., 2001), (2) b-values is smaller than stationary activities (Kano et al., 2001), and (3) the migration of hypocenters in clusters (Tadokoro et al., 2000 ). In this study, we will analyze the clustering structure by means of waveform similarities in order to estimate the generating properties of earthquakes induced by water injection.