The stress drop of earthquakess in Tokai area

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So many seismic and crustal measurements are installed in Tokai region. Using the spatial and temporal focal mechanism change in this area, Matsumura (1988) introduced the locked area of plate boundary and suggested the locked area is changing with time. The temporal or spacial change of the seismic source parameters such as stress drop could be observed if the above hypothesis is true. In this study, I derived seismic source parameters from waveform data of the events which occurred in Tokai area.

The data of accelerometer of K-net, KiK-net, JMA net and velocimeter of JMA net are used. Seismic moment, spectral decay parameter and corner frequency are determined by the S-wave amplitude spectra calculated from the horizontal components at each station for each event. The source spectrum is assumed to obey the omega-square model. The seismic source parameters and site response of each station are iteratively determined.

The spacial and temporal stress drop distribution in Tokai area is rather scattered, but I can see following tendency. (1) the stress drop of the events within the Philippine Sea plate is higher than that of crustal events. (2) the stress drop of the main events occurred in central Shizuoka region is higher than that of aftershocks .