# Simulation of the recurrence of long-term slow slip events in the Tokai region -Part2-

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We simulate recurring great earthquakes in the Tokai region on the basis of the rate- and state-dependent friction law [Dieterich (1979, 1981), Ruina (1983)].

Long-term slow slip events have occurred beneath Lake Hamanako with the recurrence period of about 10 years [Kobayashi and Yoshida (2004)]. Kuroki et al. (2004) produced slow slip events by assigning a zone of large L value within the seismic region where a-b is negative, where a, b, L are parameters of the constitutive friction law. However, the slow slip events occur in estimated asperity of the Tokai earthquake [Matsumura (1996)]. Hirose et al. (2006) tried to simulate with changing friction parameters of the asperity and another region. As a result, recurring slow slip events occurred with the period of about 30 years beneath Lake Hamanako and western area.

To shorten the period of recurring slow slip events, we tried to simulate with changing friction parameters of the western weak asperity region and adopting the new plate configuration [Hirose et al. (2007)]. We use the plate convergence rate estimated from GPS data [Heki and Miyazaki (2001)].

As a preliminary result, it is found that the friction parameters b and L have an effect on the slip type itself such as a seismic slip or a steady slip, but do not have much effect on the recurrence period of slow slip events. Period of slow slip events tends to become shorter in the case of making the size of weak asperity region narrower. However, this tendency disappears when weak asperity region is too narrow.