# Slow slip events controlled by the shape of subducting plates

# Noa Mitsui[1]; Kazuro Hirahara[2]

[1] Earth and Environmental Stu., Nagoya Univ.; [2] Environmental Studies, Nagoya Univ.

Several slow slip events (SSEs) are globally detected by analyses of high precision GPS data. They seem to occur at restricted areas. Though researchers have proposed some generation mechanisms of SSE, they made no mention of such restricted occurrence areas of SSE. To explain why SSEs occur in some restricted area, we compile the features of globally detected SSEs to find that the slab dip and its lateral change are related to their occurrences. Through simulations of earthquake cycle with SSEs using a simplified cell model, we examine the effect of dip angle in the transition zone on the interseismic SSEs. The remarkable SSEs occur several times in a seismic cycle at the cell with a smaller dip, while at the cell with a larger dip, a few undetectable SSEs occur and attenuate in the interseismic term. Actually, SSEs occur only at the area with the smallest dip in the transition zone. This simulation result is explained in terms of the frictional condition related to the stress accumulation dependent on the dip angle. In addition, it is also reproduced that a cell with a smaller dip angle has SSEs with a longer interval and longer duration.