

## Time Dependent Model of the Slow Slip Event in the Tokai Region, Central Japan, Detected by GPS Measurements in 2001

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The slow slip event is detected in the Tokai region, south Central Japan, by national GPS network in 2001. Generally, as the Philippine Sea Plate is subducting toward north-west in the Suruga-Nankai Trough, the ground displacements in the direction of north-west with rates of 1-2 cm/yr are detected in the Tokai region. The northwestward displacements are no longer observed in the region from the GPS measurements in 2001. Reports from the ground deformation monitoring by GSI suggest that the slow event is still advancing. Repeated slow slip events are estimated from the leveling and EDM ranging by Kimata et al. (2001). Mogi (1989) suggests the pre-slip of the 1944 Tonankai earthquake in the region from the leveling operated at the current day of the earthquake.

The 2001 slow slip models are estimated from the GPS measurements and leveling data by Ozawa et al. (2002) and Kimata et al. (2002). They suggest the slow slips toward southeastward with 10-20 cm are occurred in the area less than 100 sq km. The location of the slow slip fault is the inland of the plate boundary with low subduction angle at a depth 20-30km. To make clear the slow slip with more detail, we are re-processing the GEONET GPS data using the PPP method at GIPSY OASIS II and discuss the time-depended model of the slow slip event. In 2000, the ground deformations caused by the volcanic activity at the Miyakejima Volcano are detected in the Tokai region, and it makes difficult to discuss the deformation associated with the slow slip event from the GPS measurements. From our preliminary results, the vertical movements at GPS stations and shortening of line length between the neighboring GPS stations suggest that slow slip event is occurred in the western part of the slow slip fault in end of 2000 and it is shifting toward the eastern part. The rate of slow slip events is about 100km/yr and it shift the same depth along the plate boundary. Slow slip events are also observed some subduction zone of the plate motion, such as Cascadia, Canada, Mexico and Alaska from the GPS measurements recently. Comparing these slow slip events, the 2001 Tokai slow slip event is smaller and slower than other slow slip events. Meanwhile the continuous period of the 2001 Tokai slow slip event is more than one year.