

Slow strain changes recorded at Shingu borehole station in the southeastern Kii peninsula for 24 months from Oct. 2004

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In the southwest Japan, synchronized deep low frequency tremors and slow slip events occur repeatedly in several regions; Tokai, northern Kii peninsula and western Shikoku area. We observe crustal deformation at Shingu city on the southeastern coast of Kii peninsula, by use of an integrated multi-component borehole monitoring system developed by Ishii et al. [2002]. Fukuda et al. (2007) reported two types of slow crustal deformation based on the strain records for 13 months from June 2005 to June 2006. The first type is associated with deep low frequency tremor activities in the central part of the Kii Peninsula where slow crustal deformation associated with the tremors have not been detected before by other observations. The second type of slow crustal deformation occurs without associated tremor activity. One of them occurred just prior to a major tremor activity in January 2006. These slow strain signals for both types can be interpreted as a result of reverse faulting on the plate boundary. The existence of slow slip event without associated tremor activity will be important knowledge to understand the synchronized occurrence of tremor and slip.

Here, we extent the analysis period to 24 months, for October 2004 to September 2006. So far we have investigated about 10 episodic strain changes, 7 of which occurred associated with reported tremor events. However, the rest of the changes were not accompanied by tremor activity. One event shows a strain change in the opposite sense to others. We estimate a fault morel for each event, and examine possible relationship between strain changes with tremors. And we also discuss frequency of the recurrent slow slips and their slip budget. We are going to investigate the whole strain record from December 2003 to December 2007.