

Strain and groundwater level changes associated with deep low frequency tremor activities in the Southern Kii Peninsula

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AIST has been observing the strain and groundwater level at two observation stations (HGM and ICU) in the Southern Kii Peninsula since 2007. It is known that deep low frequency tremor activities occur in the Southern Kii Peninsula several times a year. From central part of Mie Prefecture to Aichi Prefecture, the slow slip events (SSEs) associated with deep low frequency tremor activities are observed by Hi-net tilt meters of the National Research Institute for Earth Science and Disaster Prevention (e.g., Obara *et al.*, 2004; Obara and Hirose, 2006). However, the tilt change associated with the deep low frequency tremor activities has not been observed in the Southern Kii Peninsula.

The active deep low frequency tremor activities occurred in the Southern Kii Peninsula in the middle of July, 2007, and the associated strain change was observed at ICU. This strain change can be explained by assuming the fault plane on the plate edge in the tremor region (Itaba *et al.*, 2007). According to Fukuda and Sagiya (2007), the similar result is obtained at the observation station in Shingu City, Wakayama Prefecture. This observation is carried out by Nagoya University and Tono Research Institute of Earthquake Science.

The active deep low frequency tremor activities occurred again in the Southern Kii Peninsula in the middle of November, 2007. Strain changes were observed at HGM and ICU during the period, and also the groundwater level changes were observed at HGM. Since the groundwater level changes associated with SSE have not been reported until now, this may become the first case.