Examination of the strain and tilt change correlated with the deep low frequency tremor and the low frequency earthquake

Shinichi Kariya[1]; Takeo Ito[2]; tsuneo yamauchi[3]; Fumiaki Kimata[4]

[1] Rsch.Ctr.Seis.&Vol.Disas,Nagoya University; [2] Environmental Studies, Nagoya Univ.; [3] RCSVDM; [4] Res. Center Seis. & Volcanology, Graduate school of Environ., Nagoya Univ.

http://www.seis.nagoya-u.ac.jp/

Historically, we have been experienced big thrust type earthquakes repeatedly. Tokai area where is located at the central part of Japan, has been mentioned a occurrence of a magnitude 7 to 8 earthquake in the near future. This area is one of the plate convergence boundaries subducting the Philippine Sea Plate(PHP) forwarding from south east to north west with 4cm per year with the plate motion velocity.

Obara(2002) reported nonvolcanic tremor event had been occurred in Southwest Japan by high density seismogram array(Hi-net). The tremorlike event which is located in the depth about 30 kilometers with 600 kilometers length parallel with the PHP subducting faces, have found from the Tokai, Kii and Shikoku district in Japan. *Obara and Hirose(2006)* had reported the non-volcanic deep low-frequency tremors is one of the evidence slow slip event. The characteristics of crustal deformation around Tokai area had already been reported by Kimata which suggested the slow slip event occurred repeatedly.

We have been observed crustal deformation measurement using a silicate tube strainmeter and a water tube tilt meter installed into a vault for over 30 years. We had started compiling those data in the late 2004. As analyzing these data, strain and tilt change has been observed during the period of the low-frequency tremor event alanyzed by Obara in the last few years.

Obara K.(2002), Nonvolcanic deep tremor associated with subduction in southwest Japan, Science, 296

Obara K. and Hirose H.(2006), Non-volcanic deep low-frequency tremors accompanying slow slips in the southwest Japan subduction zone, Tectonophysics, 417