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Array observation of short span strainmeter in the Kii peninsula

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Crustal deformations have been observed associated with deep low-frequency tremors occurring below the Kii peninsula and Shikoku. Strain measurements by an extensometer at Kishu operated by DPRI, for example, show that the sources with epicentral distance of 30 - 40 km causes strain changes of $10^{?9}$ to $10^{?8}$ occurring within several days. Although the traditional extensometer observations can detect these strain changes, it is difficult to make detailed analyses because of the limited number of stations. We designed a short-span extensometer with 1.5 m-long standard measure. Strong coupling of the instrument to the ground is important for stable observations, so three anchor bolts fixed to the base of the instrument are cemented into a 50-cm-deep hole. We observed crustal deformation associated with deep low-frequency tremors by the short-span extensometer installed at Nakaheji. We detected strain change associated with low frequency events occurred on March 2013. We are preparing another sites for installation of the strainmeter around the western Kii Peninsla to constract array of strainemters. The array observation contributes to improve the detection capability of crustal deformation by eliminating noise caused by weather disturbance and to have better understanding of slow slip events such as slip distribution.

Keywords: strainmeter, slow earthquakes, array observation