

Long-term slow slip events around eastern Shikoku and Kii Channel

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Long-term slow slip events around eastern Shikoku and Kii Channel are investigated using the GEONET GPS data. We estimated the steady deformation rate at each GPS station from the daily coordinates for the period from January 2006 to December 2009. Then the steady deformation rates were subtracted from all the coordinate data. The artificial offsets of the coordinate were corrected using data set shown on the homepage of the Geospatial Information Authority of Japan. We can see south-eastern displacements of a little less than 1 cm at GPS stations in eastern Shikoku from April 2001 to April 2003. These unsteady displacements are also seen in the time series of coordinate and the baseline length. Moreover, the change of the baseline length is also seen in 1996.

We estimated slip distribution on the plate boundary, assuming the unsteady displacements were caused by the slip on the plate boundary. The estimated slip is distributed from eastern Shikoku to the Kii channel. Non-volcanic deep low-frequency tremors are distributed belt-like along the Nankai trough. However, the active tremor is not observed in the Kii channel. It may provide important information about the condition of the plate interface that the long-term SSEs are seen in the region where the active non-volcanic deep low-frequency tremor is not seen.

Keywords: long-term slow slip, GPS, crustal deformation, eastern Shikoku, Kii Channel