

## The capacity of detecting slip deficit at the Nankai Trough based on seafloor geodetic observation

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Nationwide continuous GPS observations operated by Geophysical Survey Institute have revealed the spatio-temporal variation of fault slip on the plate interface around Japanese island. However slip resolution is low especially at the shallower part of the plate interface, we cannot necessarily discuss the crustal deformation with sufficient resolution at the offshore area near trench axis. Seismic reflection surveys at the Nankai Trough have illustrated the existence of splay faults which were estimated to be slipped and generated large Tsunami at the 1944 Tonankai and the 1946 Nankai Earthquakes. Thus, it is important to clarify the strain accumulation process at the shallower part of the plate interface and its relationship between the generation of mega-thrust earthquakes. For this issue, the Nagoya University, Tohoku University, University of Tokyo, and Japan Coast Guard have been developed and conducted observations for the seafloor crustal deformations using a GPS/Acoustic technique. Now, we can detect the crustal movements within the precision of a few cm for each observation. In case that we evolve the seafloor geodetic observations with high spatio-temporal density, we could estimate the precise plate motion and discuss continuous deformation field from trench axis to land area. In this study, we calculate surface deformations accompanied with plate subduction in an elastic half-space and discuss the optimum locations of the seafloor geodetic sites to detect the fault slip at the shallower part of the Nankai Trough using numerical simulation.