Long-term slow slip event beneath the Shima Peninsula from 2017 to 2018

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In the Nankai Trough, slow earthquakes such as long-term slow slip events (SSEs) and short-term SSEs have been observed. Long-term SSEs occur around locked fault zones that are considered likely to cause large earthquakes in the future. It is important to characterize the spatiotemporal transitions of long-term SSEs.

We used the daily coordinates of the GEONET F3 analysis operated by the Geospatial Information Authority of Japan. We removed coseismic offsets, artificial offsets, annual and semi-annual variations, and long-term trend. From the displacement from April 2017 to October 2018, the displacement from January 2016 to April 2017 was subtracted for correction of the postseismic deformation. Unsteady displacement in southeast direction about 7-8 mm was seen in the Shima Peninsula.

Assuming that this displacement is due to a long-term SSE, slip distribution on the plate interface was estimated. The estimated slip distribution was located in the Shima Peninsula and moment magnitude was 6.5.

The GNSS F3 coordinate data and offset data were provided by the Geospatial Information Authority of Japan.

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