GNSSデータによって検出された関東地方における短期的スロースリップイベント
Short-term Slow Slip Events in the Kanto Region, Central Japan Detected Using GNSS Data

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The Kanto region, central Japan is situated under complex tectonics where the Philippine Sea and the Pacific plates subduct from the Sagami Trough and the Japan Trench, respectively. Several large earthquakes including the 1923 M7.9 Kanto earthquake historically damaged the Kanto region. Shallow short-term slow slip events (SSEs) were observed by continuous GNSS east off the Boso Peninsula in 1996, 2002, 2007, 2011, and 2014 [e.g., Ozawa *et al.*, 2014]. These Boso SSEs with M_w ~6.6 occurred on the Philippine Sea plate in a depth of 10-20 km. Some studies reported that SSEs occurred on the Pacific plate. However, spatiotemporal distribution of SSEs remains unclear in the Kanto region. In this study, we accomplish systematic searches for SSEs along both the Sagami Trough and the Japan Trench using GNSS data.

An operation of a continuous GNSS network was started in 1994 in the Kanto region. We estimate daily coordinates at all available stations operated by the Geospatial Information Authority of Japan and the Japan Coast Guard using GIPSY 6.2 software. We apply the method of Nishimura *et al.* (2013) and Nishimura (2014) to detect a jump associated with short-term SSEs in GNSS time-series and estimate their fault models from observed displacements. A rectangular fault on the Philippine Sea or the Pacific plates is assumed for each SSE. The stacking of GNSS time-series based on the displacement predicted by the fault model [Miyaoka and Yokota, 2012] enable us to estimate duration of SSEs. For SSEs on the Philippine Sea plate, five Boso SSEs are detected with duration of 9-13 days. Although the largest SSE with M_w6.7 is detected far east off the Boso Peninsula, no apparent seismicity is observed. The duration of the SSE is estimated to be 23 days, which is longer than the Boso SSEs. The longer duration may be a cause of no seismicity related with the SSE. For SSEs on the Pacific plate, we found 24 SSEs. Their moment magnitude ranges between 6.0 and 6.4. Many SSEs are clustered near the eastern rim of the overriding Philippine Sea plate. This may reflect on a difference of interplate coupling controlled by geology of the overriding plate [Uchida *et al.*, 2009]. It is also suggested that the SSE cluster corresponds to a subducted seamount induced from a bathymetry.

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