

Slip deficits beneath the south Kanto district as estimated by GPS data inversion incorporating the West-Sagami-Bay Fracture

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Distribution of interseismic slip deficits on the Philippine Sea (PHS) plate boundary beneath the south Kanto district has been estimated by GPS data inversion incorporating the West-Sagami-Bay Fracture (WSBF) proposed by Ishibashi (1988, 2004). The WSBF is supposed to be a north-south striking tear fault (westward-steeply dipping left-lateral reverse fault) within the PHS plate beneath the northwestern part of Sagami Bay, just east-off the Izu Peninsula, and further north beneath the Honshu land area. It is considered to separate the subducting part of the PHS plate on its eastern side from the colliding part of the PHS plate (the Izu block) on its western side and to play an important role in the tectonism in the Izu collision zone. However, it has not yet been directly detected by seismic, geologic or geophysical surveys.

We picked horizontal and vertical displacement data at 93 GPS stations of GEONET around the southern Kanto district and the Izu Peninsula during one-year period from Jan. 1999 to Jan. 2000. This is to avoid effects of volcanic activities, slow slip events and seasonal variations as much as possible. We adopted two kinds of interplate surface geometry; one is the result of structural exploration by Sato et al. (2005), and the other is the plane which we used in our previous study on static fault model of the 1923 Kanto earthquake. As for the WSBF, we assumed the same geometry as in the previous study.

As a result of inversion, we obtained almost the same slip deficit distribution in two cases. On the interplate surface, large vectors towards northwest are seen off the southern part of the Boso Peninsula, and on the WSBF, vectors towards north-northwest and sinking down, of which the southernmost vector is the largest. This result suggests accumulation of strain along the WSBF.

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