

# A new image of plate configuration and seismotectonics of the triple junction beneath the Kanto region, Japan

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Use of a 3D Geographical Information System to explore well-recorded seismic data by National Research Institute for Earth Science and Disaster Prevention (NIED) provides a new image of plate configuration of the triple junction beneath the Kanto region centered at Tokyo. From the detailed images of seismicity, we find a sharp westward-convex bend (NW-facing cusp) of the Pacific (PAC) plate slab at depths below 100 km, a pattern that is consistent with the sharp curvature of volcanic front in central Japan. We also infer that a ~25-km-thick crustal block, which might be a broken piece of the upper crust of PAC, is sandwiched between the PAC and the Eurasian (EUR) plates under the Kanto plain. We believe this stacked section of oceanic crust has cooled down the overlying EUR plate, which has consequently become seismically much thicker (~30km) than is typical for inland Japan, and has thus produced a shallow aseismic zone east of the Boso peninsula. In contrast, we find the Philippine Sea (PHS) plate extends no deeper than 40 km beneath the Kanto plain, with its leading edge barely reaching under the north of Tokyo Bay. Furthermore, the western Kanto region, including Mt. Tanzawa and the Izu Peninsula, which are thought to be parts of volcanic islands on the PHS plate that collided with the EUR plate since 3Ma, do not show any subducted PHS slab, and instead exhibit shallow active seismicity related to intra-plate deformation. This proposed plate configuration for the Kanto region will change the Kanto seismic hazard assessment.