

## Crustal deformation of the northeastern margin of the Izu Collision Zone inferred from GPS observations

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Izu Collision Zone is characterized by the collision between Izu Peninsula and Tanzawa Mountains, and Philippine Sea Plate also subducts beside this zone. Because of these complicated plate geometries, a number of historical earthquakes occurred in the northeastern margin of this zone. Additionally, there are a lot of active faults in the marginal area of the collision zone.

It is important to describe the steady state of crustal deformation in the Izu Collision Zone, in order to clarify mechanisms of earthquakes occurring in this area. In this study, we examined crustal deformation of the northeastern margin of Izu Collision Zone by using the datasets of GEONET sites (coordinate F3) and our original GPS sites.

Based on the displacement velocity vector diagram and profile, we can point out the following characteristics of crustal deformation there.

- 1) Remarkable northward crustal displacement vectors were observed in the eastern area of the Kita-Izu fault zone.
- 2) A shear zone with North-South trend was detected in the area between Kita-Izu fault zone and Ashigara Plain. Width of its zone was estimated about 15-20 km. Average shear strain rate in this zone was about 0.47 micro-strain per year.
- 3) Such remarkable crustal displacement vectors were not observed in the western area of the Kita-Izu fault zone.

This shear zone may be a transition zone between the collision and the subduction blocks on the Philippine Sea Plate, caused by the displacement gap between the blocks.

Keywords: GPS, crustal deformation, Izu Collision Zone, Kita-Izu fault zone

