

Statistical classification of displacement field around the Izu Peninsula based on soft clustering of GNSS data

*Yuta Mitsui¹, Satoru Watanabe²

1. Department of Geosciences, Shizuoka University, 2. formerly at Department of Geosciences, Shizuoka University

On the basis of statistical (soft) clustering of a horizontal displacement field from Global Navigation Satellite System, we conduct classification of the observation points around the Izu Peninsula, a collisional zone in Japan. We determine the best number of the clusters by a statistical index (Xie and Beni, 1991), and classify 44 observation points into 4 clusters: “Fuji cluster”, “Southern Izu cluster”, “Sagami cluster”, and “Oshima cluster”. The boundaries between the clusters almost correspond to locations of recent large earthquakes. Although several points differ from a recent concept of the Izu microplate, we obtain the following perspectives: (1) Northern part of the Izu Peninsula is integrated with Honshu, the main island of Japan. (2) Multiple cluster boundaries merge around Izu Tobu Volcano Group. (3) Fault zones of landward extension of subduction trenches (the Suruga Trough and the Sagami Trough) do not correspond to the cluster boundaries.

Keywords: GNSS, Soft clustering, Tectonics