

A dense GPS observation around the northern Itoigawa-Shizuoka Tectonic Line

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The Itoigawa-Shizuoka Tectonic Line Fault Zone is considered to be one of the most active faults in the Japanese inland, and various researches and observations have been conducted around the fault zone. In addition to GEONET, the nationwide continuous GPS array by the Geographical Survey Institute, a dense GPS array by Sagiya et al. (2002) is operated for investigating crustal deformation in this area. However, the aerial coverage of the continuous GPS stations is not enough because of they are concentrated along the fault trace or linearly aligned across the fault.

Therefore we constructed new campaign-type GPS stations in the northern Nagano and Gifu prefectures. 28 new stations are located in gaps of the existing continuous GPS network. Each station is installed on the roof or the wall of a stable concrete building.

We conducted two campaign surveys so far, one in from October to November 2002, and the other in November 2003. We used 16 dual frequency TOPCON GP-R1DY receivers and antennas. Campaign stations were divided into two groups and each group was occupied for about a week continuously with 30 second sampling.

Campaign data were analyzed by using the GPS Bernese software together with data from continuous GPS sites. Resultant displacements for 1 year are roughly consistent with velocity data at surrounding continuous sites. However, it is difficult to discuss crustal displacement of less than 10mm with observation data whose standard deviation is as large as several mm. Thus we have to wait for the next observation in 2004 for scientific discussion.