

SSS021-09

会場: 302

時間: 5月27日16:00-16:15

稠密GPS観測から見る跡津川断層帯の応力蓄積過程

Tectonic loading processes of the Atotsugawa fault scrutinized by dense GPS observation

鷺谷 威^{1*}, 大園 真子², 平原 和朗³, 橋本 学³, 竹内 章⁴, 道家 涼介⁴

Takeshi Sagiya^{1*}, Mako Ohzono², Kazuro Hirahara³, Manabu Hashimoto³, Akira Takeuchi⁴, Ryosuke Doke⁴

¹名古屋大学, ²東北大学, ³京都大学, ⁴富山大学

¹Nagoya University, ²Tohoku University, ³Kyoto University, ⁴Toyama University

We have been conducting dense GPS observation around the Atotsugawa fault, central Japan for about 10 years in order to investigate detailed crustal deformation pattern. Our GPS network consists of 30 original continuous sites in addition to the nationwide network (GEONET), covering the whole Atotsugawa fault with spacing of 5 to 10km. Horizontal velocities at GPS sites are estimated from precise daily coordinates and their accuracy is mostly less than 1 mm/yr. These velocity vectors demonstrate the detailed interseismic deformation pattern around the Atotsugawa fault. In the central part, a clear right-lateral motion of about 10 mm/yr is recognized across the fault, which is consistent with the fault locked depth of about 15 km corresponding to the thickness of the seismogenic layer. On the other hand, significant contraction (>0.2 ppm/yr) is identified at the both ends of the Atotsugawa fault, indicating laterally heterogeneous deformation along the fault trace. It is probable that the coincidence of the lateral ends of the fault and the large strain spots is not an accident, but implies inelastic deformation processes there. Then the locked portion of the fault is loaded not only from its bottom edge but also from its side edges. In addition, we identify asymmetric deformation pattern near the western end of the fault, which is consistent with the existence of the Shogawa fault, one of the conjugate faults. Thus our observation demonstrates that the possible extent of a future fault rupture is delineated by inelastic deformation and can be identified through a scrutiny of detailed interseismic deformation pattern around active faults, which is analogous to the cases of plate boundaries.

キーワード: 跡津川断層, 地殻変動, 応力蓄積, ひずみ集中帯, GPS

Keywords: Atotsugawa fault, crustal deformation, tectonic loading, strain concentration zone, GPS