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# Generation of high-temperature fluid and its spatial distribution in an ancient megasplay fault

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An ancient megasplay fault outcrop is identified within Kure region of the Shimanto accretionary complex and has been formed at 2.5 – 5.5 km depth. Recent works show pseudotachylyte produced by frictional melt, fluid-rock interactions at high temperatures (>350 ℃) and enrichment of incompatible element concentrations on the fault. However, spatial distribution of pseudotachylyte and high-temperature fluid is not investigated. These informations are important to understand an earthquake is able to produce extensively high-temperature fluid and thermal pressurization. Accordingly, we performed deformation structures analysis and obtained 46 rock samples from the outcrop and analyzed these samples by vitrinite reflectance measurement, powder X-ray diffraction-RockJock mineral composition analyses and trace elements compositions measurement. Therefore, analyses of black gouge samples from the slip zone indicate fluid-rock interactions at high temperatures, whereas footwall sandstone samples that are close to fault gouge indicate enrichment of quartz and decrease of rare-earth element concentrations. These contrasts may be regarded as mobilization of elements derived from seepage of yielded high temperatures fluid within the slip zone.

Keywords: Nankai trough, megasplay fault, Shimanto accretionary complex, fault rocks, fluid-rock interactions, X-ray diffraction