

# A comparison of the splay fault in the Nankai Trough and a major on-land out-of-sequence thrust in the Shimanto Belt

# Gaku Kimura[1]; Jin-Oh Park[2]

[1] Earth and Planetary Science . Inst., Univ. of Tokyo (Jamstec, IFREE); [2] JAMSTEC, IFREE

The most significant drilling site of the Nantro SEIZE experiment is the splay fault off Kii Peninsula. The fault is characterized by reflectors with about 200m wavelength with intermittently traceable positive or negative polarities (Park et al., 2002). What properties and condition control the reflector is quite important to focus sharply on the target of the drilling.

Thickness of the fault zone with a displacement of several kilometers is expected to be about several tens of meters on the basis of scaling law. In that case, observed wavelength is consistent with expected thickness of the fault zone. What properties and condition of the fault zone result in positive or negative polarities in reflectors in that cases. Does the negative polarity is a result of existence of abundant water and abnormal high fluid pressure as pointed by Park et al. (2002)? What is the positive polarity for the fault zone?

To obtain the hypothesis for the polarity of the splay fault before drilling, we are studying an ancient out-of sequence thrust on land, the Nobeoka Thrust in Kyushu, which was deeply seated in the past and preserves a fault rock in the seismogenic depth.

Detailed geology and deformation aspects of the Nobeoka Thrust have been already reported (Kondo et al., TECTONICS in press; Okamoto et al, this meeting). Displacement along the fault is several to ten kilometers, and thickness of the shear zone is more than hundred meters. The shear zone is composed of subsidiary faults more than 200 and tremendous amounts of tensional crack-filling mineral veins. Some subsidiary faults clearly show evidence of melting (Okamoto et al., this meeting). Some cracks suggest hydrofracturing and implosion due to thermal pressurization of the fluid.

A large amount of mineral precipitation in the cracks suggests active fluid flow in the fault zone. Opening and precipitation ratio of the cracks might control the reflectivity of the fault zone and of suggestive for the positive or negative polarities of the modern splay fault in the Nankai Trough.