

Digest of first part of IODP NanTro SEIZE project

SAKAGUCHI, Arito^{1*}, KINOSHITA, Masataka¹

¹JAMSTEC

The IODP Nankai trough seismogenic zone drilling project (NanTro SEIZE) aims to understand the earthquake mechanics from fault rock analysis, borehole logging and long term monitoring. This project has been doing since 2007, and deep riser drilling to reach seismogenic depth will start on 2012. We introduce three topics of (1) Identification of earthquake fault of 1944 Tonankai, (2) In-situ stress at seismogenic area and (3) Seismic rupture propagation to the unexpected shallow portion.

Two major thrusts of plate boundary and mega-splay faults are developed off Kumano area. It was hard to know earthquake history of abyssal plate subduction faults. Strong seismic shaking originated mud-breccia was found around mega-splay fault. The 210Pb method revealed that the formation of latest mud-breccia is concordant with the 1944 Tonankai earthquake (Sakaguchi et al., 2011). This is a direct evidence of the earthquake fault as 1944 Tonankai earthquake.

Stress distribution across the Tonankai earthquake are was revealed using the technique of Borehole breakout, Borehole hydrofracturing test and Anelastic strain recovery. In the result, most of area affects compression stress concordant with pate convergent direction except the area of hanging wall of the mega-splay fault. Though this is still controversy, local stress difference may be due to thrust related hanging wall deformation and/or is limited in shallow portion (Byrne, et al 2009).

The geothermometric analysis of the fault core sample reveals that the two examined fault zones underwent localized high temperature though the toe of the accretionary wedge has classically been considered aseismic zone.. This suggests that coseismic slip must have propagated to the up-dip end of the megasplay fault and to the toe of the accretionary wedge (Sakaguchi, et al., 2011).

Keywords: Nankai, Seismogenic, Plate subduction, Fault