

NanTroSEIZE Overview on shallow transect and implication on the activity of megasplay fault

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The first stage of IODP Complex Drilling Project NanTroSEIZE (Nankai Trough Seismogenic Zone Experiments) focused to characterize the shallow portion of Nankai seismogenic/accretion system off Kumano. In 2007-2008, a great amount of core samples and logging/downhole measurement data were recovered at 8 sites drilled by D/V Chikyu of JAMSTEC during three expeditions where more than 70 scientists participated.

Primary targets for Stage 1 expeditions were the frontal thrust region, the midslope megasplay fault region, and the Kumano forearc basin region. Most excitingly, we found several lines of evidence that indicate recent/present activity of the megasplay and frontal thrust faults, although all drillsites were considered to be in the aseismic portion. Also, many observations, such as borehole breakout images or core fractures, suggest a complex history and spatial variation in the stress field around the drillsites. Results on accretionary complex structure, lithology and age, physical properties, and state of stress are reviewed across the expeditions in this paper.

Monitoring of interseismic strain, seismic and hydrological parameters in the close vicinity of seismogenic zone is one of our ultimate goals of NanTroSEIZE. The first step toward it starts as Stage 2 riser drilling in the Kumano forearc basin. Although it is essential, for understanding the mechanism of great earthquakes, to know how the interseismic (or even post-seismic) strain is being accumulated or partitioned throughout the system, we still do not have a right tool ready to install. This riser hole is dedicated primarily for the installation of geodetic/seismic/hydrological observatory which is under development at JAMSTEC.