

Expedition Review of NanTroSEIZE Stage 1 LWD Transect: Logging-While-Drilling planning, operational challenges and data quality

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<http://www.jamstec.go.jp/chikyu/eng/Expedition/NantroSEIZE/exp314.html>

Integrated Ocean Drilling Program (IODP) Expedition 314, NanTroSEIZE Stage 1 LWD Transect, was a milestone, both as the inaugural scientific drilling mission of the new vessel, Chikyu, and as the first setp in the multistage Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE). Due to its first-ever in various categories, expedition planning took longer time and much effort was used in tool selection.

Primary goal, to obtain a comprehensive suite of geophysical logs and other downhole measurements at sites along a transect from the incoming plate to the Kumano forearc basin, was achieved overcoming difficult situations from two major challenges, Kuroshio current and borehole conditions, experienced throughout the 56 days long expedition. The Kuroshio Current presented at all sites and more often at 3 knot or greater velocity. The difficult borehole conditions in this tectonically active faulting environment obviously caused substantial loss of operational time, failure of equipment and lost of toolstring.

As various and accurate measurements with LWD tools were made and recorded, data quality was found to be effected by the operational limits - both from borehole conditions and Kuroshio current. Results from this analysis will benefit better planning for the future expeditions in this particular region, and the review on the expedition planning will improve CDEX's service in future expeditions as well.