

MIS007-P03

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## Reconstruction of Sedimentary Sequence in Kumano Basin Analyzed by Core-Log Integration: Results from NanTroSEIZE Stage1

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Downhole logging data combined with core data are useful to determine physical properties and lithology of the formation. However, layer-by-layer analyses were not routinely conducted especially for marine siliciclastic sediments due to poor core recovery. We aim to investigate detailed analysis of sedimentary sequence developed in Kumano Basin using core-log integration method.

During Integrated Ocean Drilling Program (IODP) Expeditions 314/315, Site C0002 was drilled, logged, and cored down to 0-1400 meters below seafloor (mbsf). Stratified structures are clearly imaged by a seismic reflection profile in the southern edge of Kumano Basin including Site C0002 area. A 935m-thick basin fill and accretionary prism were drilled and logged with logging-while-drilling (LWD) at Hole C0002A and high quality data were continuously acquired. Coring operations were conducted at the intervals 0-204 and 475-1057 mbsf in Hole C0002B. Although the two holes are tens of meters away, they are close enough to correlate.

We compared lithology of the recovered cores and log data, mainly resistivity and natural gamma ray, in the two cored intervals. As the core recovery was good throughout the upper interval, clear correlations are recognized between the lithological variations and log responses. Most of the sand layers are characterized by low gamma ray and low resistivity values. In the lower interval, where cores were recovered by the RCB system, the core recovery was poor and the dominant lithology is mudstone. However, the log responses suggest that the formation in the lower interval are composed of alternating beds of sandstone and mudstone. The thickness of LWD-based mudstone coincides with the thickness of recovered sediments (=mudstone), suggesting that the recovered cores represent highly biased lithology due to no recovery of sandstone.

Based on the core-log integration studies, the LWD-derived lithology can be applied for the entire section of the hole including non-cored and poorly recovered intervals. We reconstructed the history of sand supply into the Kumano Basin based on the detailed analysis of the thickness and frequency of sand layers at Site C0002.

**Keywords:** IODP (Integrated Ocean Drilling Program), Nankai Trough, LWD (logging-while-drilling), resistivity, natural gamma ray, core-log integration