

Logging and seismic data correlation using IODP Expedition 314 LWD data

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We obtained LWD (Logging While Drilling) data at 5 sites during IODP Expedition 314, first NanTroSEIZE drilling expedition. Log-seismic integration studies are indispensable to spread the physical property data obtained at the drilling sites. We will introduce the correlation between the seismic profiles and logging data and log units.

At drilling sites C0001, C0003 and C0004, which are located on the forearc slope area, seismic profiles show that the slope sediments cover the older accretionary prism. The boundary between them is quite well correlated with the Log Unit I/II boundary. At C0001, Log Unit II/III boundary is not clear in the seismic profile but the amplitude of the reflection events in these Log Units is different. At C0004, the splay fault reflector in the seismic profile does not exactly match with the Log Unit II/III boundary, but the Log Unit III can be correlated with the flat reflectors in the footwall of the splay fault.

At C0002, which is located in the Kumano forearc basin, the lower boundary of the gas hydrate layer suggested from resistivity data exactly matches with the BSR in the seismic profile, and the Log Unit III/IV boundary also matches with the boundary between the forearc sediments and underlying old accretionary prism in the seismic section. We confirmed that a negative polarity reflector observed below the BSR is caused by the low p-wave velocity zone beneath the reflector. At C0006 in the prism tow, the Log Unit III/IV boundary is correlated with a low angle reflector which is interpreted as the proto-thrust.

We will also present seismic attribute maps and their correlation with the logging data.