AOGS 2005

Site Survey for the Proposed IODP NanTroSEIZE Drilling sites

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We CDEX, are conducting the processing and interpretation of the multi-channel seismic (MCS) survey and side scan sonar (SSS) / sub-bottom profiler (SBP) survey data of the Kumano-nada area where IODP NanTroSEIZE drillings are proposed. CDEX is an implementation organization of riser-equipped drilling vessel *CHIKYU*, and operating an engineering and a safety site survey.
In 2003, the MCS data was obtained by R/V *Polar Princess* in the Kumano-nada area. A 24 km (trench parallel) x 40 km (trench normal) MCS survey with 2 km grid obtained a detailed structural image. Data of the MCS survey were processed by conventional method including parabolic radon filter, DMO and post-stack time migration. In addition, pre-stack time migration and pre-stack depth migration processing were applied to some MCS survey lines.
The trench-normal seismic profiles gave a clear image of the subducting plate boundary, décollement and out-of-sequence thrusts (OOSTs). The décollement characterized by a strong negative reflector, steps down into the oceanic crust at the depth around 5,500 mbsf. An OOST shows a upward (seaward) branching and at least three or four second order OOSTs were recognised in a shallow part. Upward branching of OOST was observed also on the trench-parallel profiles towards East. Bottom of the Kumano forarc basin lies at the depth of ca. 2,000 mbsf, and is highly undulated on a depth-migrated section. A NE–SW trending trough-like structure was recognized on the basin bottom horizon. Seismic character changes drastically across this horizon and no strong reflector is observed beneath this horizon except for sporadically distributed amplitude anomalies. A planned 3D seismic survey will be a great help to the further understanding of the geologic structure of the Kumano-nada area.
The SSS/SBP data were collected for the area of NanTroSEIZE Phase 2 and 3 proposed drilling sites (ca. 12 km E–W x 8 km N–S). The survey was carried out as a JAMSTEC–ORI collaborative research, using ORI's deep-tow system *WADATSUMI* and JAMSTEC R/V *KAIYO* in Dec. 2004. Piston corings were also carried out at five sites chosen based on the SSS/SBP data. These survey revealed rather smooth seafloor conditions may consist of silty clay sediments at the vicinity of the proposed riser drilling sites.

Keywords: Nankai Trough; multi-channel seismic survey; side scan sonar / sub-bottom profiler survey.