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JAMSTEC

### **Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) and the Deep-Sea Scientific Drilling Vessel *Chikyu* —Damages to Drilling Equipment and Changes to Drilling Plans—**

The deep-sea drilling vessel *Chikyu* has been deployed by the Japan Agency for Marine-Earth Science and Technology (JAMSTEC: Asahiko Taira, President) on the Integrated Ocean Drilling Program ([\\*1](#) IODP) Expedition 338: The Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) Stage 3 from October 4, 2012. Plans for FY2012 included drilling from 860 m to 3600 m below the seafloor. Although drilling has progressed to 2000 m below the seafloor, plans for this fiscal year have been revised as sudden changes in sea conditions resulted in damage to parts of the drilling equipment.

#### 1. Circumstances when drilling equipment was damaged

- On November 17, the passage of cold front caused sudden changes in strong wind (30 m/s and 4.8-knot current) and it made difficult for the *Chikyu* to maintain its position. In order to ensure the safety of the ship and drilling equipment, the riser pipe ([\\*2](#)) connecting the ship and LMRP([\\*3](#)) was disconnected from the blowout preventer ([\\*4](#)) installed on the seafloor.
- After disconnect, the strong tidal current caused the riser pipe to tilt and the upper part of the pipe contacted the hull of the ship. The equipment ([Figure 1](#)) connected to the upper part of the riser pipe was damaged at that time. The detailed causes of this event are currently being investigated.

#### 2. Outline of changes in plans

As the ongoing riser operation cannot be conducted without the damaged equipment; these operations will be suspended during FY2012 after securing the borehole. The drilling will be resumed in FY2013. Plans for the remainder of FY2012 will be revised and drilling scheduled for FY2014 as part of the Nankai Experiment at other locations will be conducted including collection of geological samples and well logging.

#### 3. Schedule for *Chikyu*

- Exchange of equipment and supplies offshore of Shingu
- Enter port at Shimizu Harbor by January 13, 2013

- Details of the Nankai Experiment after FY2013 have not been determined

\*1 The Integrated Ocean Drilling Program (IODP)

IODP is an international marine research-drilling program dedicated to advancing scientific understanding of the Earth by monitoring and sampling seafloor environments. Through multiple platforms, scientists explore IODP's principal themes: the deep biosphere, environmental change, and solid Earth cycles. IODP has been in operation since October 2003, funded jointly by the Japan Ministry of Education, Culture, Sports, Science and Technology and by the U.S. National Science Foundation. The 18-member European Consortium of Ocean Research Drilling (ECORD), the People's Republic of China, the Republic of Korea, India, Australia and New Zealand (ANZIC), Federative Republic of Brazil provide additional support.

\*2 Riser Pipe

Pipe connecting the ship to the blowout preventer equipment. Drilling is conducted by lowering the drill pipe inside the riser pipe.

\*3 LMRP(Lower Marine Riser Package)

Upper part of Blowout Preventer, which is for retrieving the riser and for emergency disconnect.

\*4 Blowout Preventer

Equipment to prevent the uncontrolled discharge of fluids in the event of infiltration of oil, gas, or other fluids from strata into a borehole by rapidly sealing the borehole and controlling the pressure.



Figure 1 Damaged equipment (left) and cracks inside the equipment (right).

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