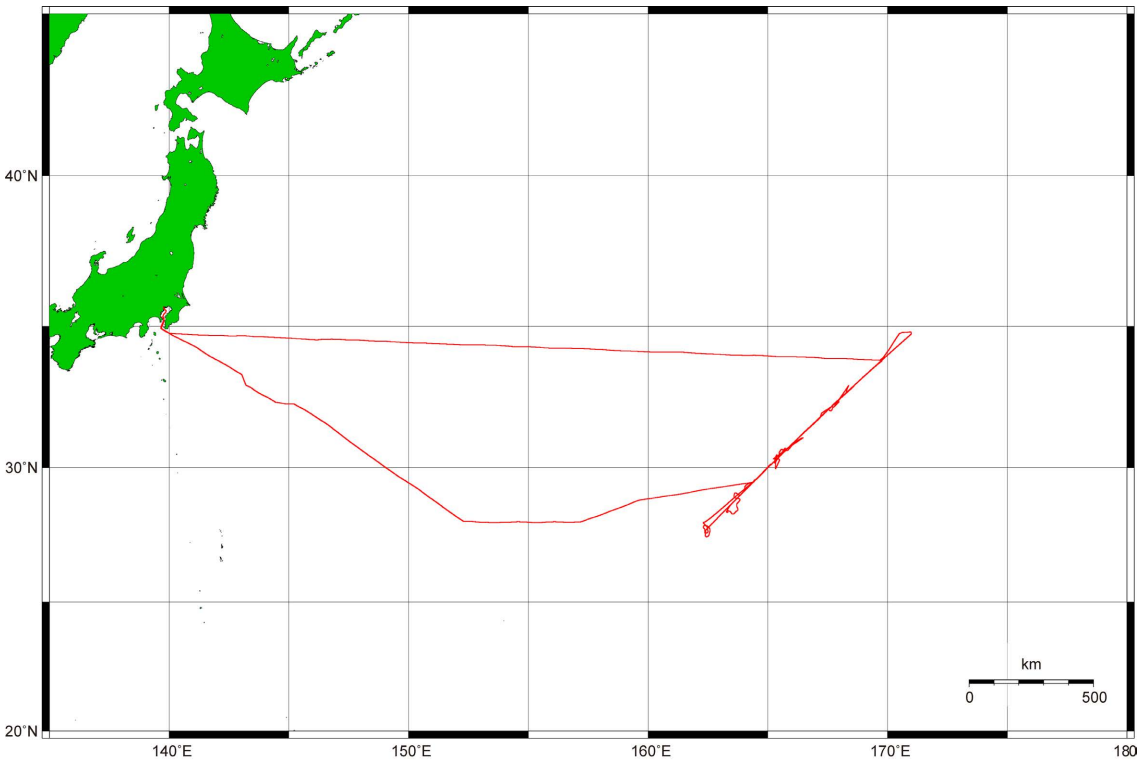
Submission date 2014/07/24

Cruise Summary

1. Cruise Information

- Cruise ID: KR14-06
- Name of vessel: R/V Kairei
- Title of the cruise: FY26 IODP related pre- and post-drilling site surveys 1: Mohole project
- Chief scientist: Yasuyuki Nakamura [JAMSTEC]
- Representative of the Science Party: Shuichi Kodaira [JAMSTEC]
- Cruise period: 2014/05/27 – 2014/06/24
- Ports of call: Yokosuka – Tokyo
- Research area: Southeast of Shatsky Rise

○ Research map:



Red lines are the ship track during the KR14-06

２. Overview of the Observation

● Overview of the observation

We conducted a seismic cruise in the Pacific Ocean, southeast of the Shatsky Rise, using 5 Ocean Bottom Seismographs (OBS) and multi-channel seismic survey system by R/V Kairei. This cruise had been originally planned to be carried out off Hawaii as a site survey for the “Mohole project” by International Ocean Discovery Program, however it was postponed due to circumstances on US EEZ clearance. The location was changed to southeast of the Shatsky Rise to achieve the original purpose of this cruise, i.e., to understand the “normal” old oceanic plate and evaluate the effect from hotspot activity to the normal oceanic plate structure. We set a very long survey line approximately perpendicular to the magnetic lineation to obtain MCS and OBS data using Kairei’s MCS system. Following observations were conducted during the survey.

(1) Deployment and retrieval of OBSs

Five OBSs were deployed along the survey line PP01. OBS location was determined by SSBL system at the deployment. After shooting air guns, OBS was retrieved by self-popup system.

(2) MCS/OBS survey (reflection and refraction seismic survey)

We fired the Kairei’s air gun array along the survey line PP01. The air guns were towed at 10 m depth and fired every 200 m. The ship speed was kept ~3.5-4.5 knots during the shooting. A 6000 m, 444 channel streamer cable was towed at 12 m depth to record the seismic signals from air guns.

(3) XCTD measurements

We conducted two XCTD casts at the north and south of the survey area to obtain the acoustic velocity profile in the water column.

(4) Bathymetry, gravity, magnetic surveys

Bathymetry data were collected by multi-narrow beam echo sounder (seabeam) during the survey. Gravity and magnetic data were also collected.