Cruise Summary

1. Cruise Information

● Cruise ID: KR17-04

● Name of vessel: R/V Kairei

● Title of the cruise: Seismic survey and observations in Japan Trench region

● Chief scientist:

Leg 1: Gou Fujie [JAMSTEC]

Leg 2: Koichiro Obana [JAMSTEC]

● Representative of the Science Party:

Shuichi Kodaira [JAMSTEC]

○ Title of proposal:

Marine Geological and Geophysical surveys to investigate the nature of subduction zone mega earthquakes and tsunamis

1. Seismic survey in the outer rise region

3. Seismicity observation in the outer rise and trench axis region

● Cruise period:

Leg 1: February 26, 2017 – March 16, 2017

Leg 2: March 17, 2017 – March 30, 2017

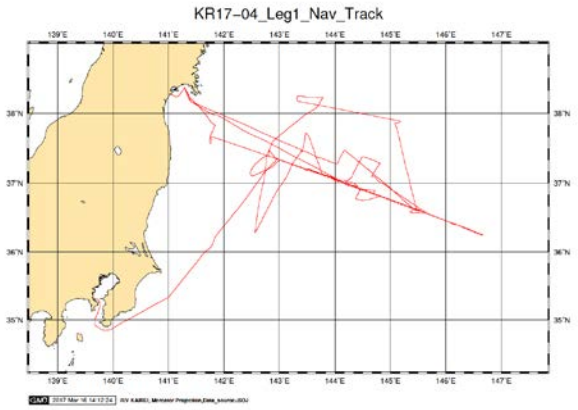
●Ports of departure / call / arrival:

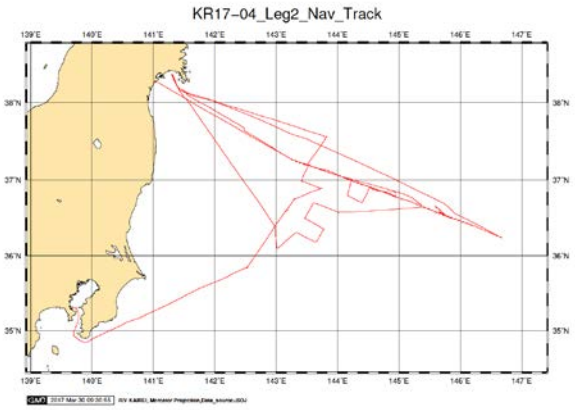
Leg 1: Yokosuka (JAMSTEC) – Sendai

Leg 2: Sendai – Yokosuka (JAMSTC)

● Research area: Japan Trench

○ Research map





2. Overview of the Observation

●On 11 March 2011, the great 2011 Tohoku-oki earthquake (Mw 9.0) was occurred in the Japan Trench region. This was the greatest earthquake that has been observed in Japan, and it caused devastating damages in the eastern Japan. To evaluate the hazard of the large interplate and outer rise earthquakes next to the rupture zones of the 2011 Tohoku-oki

earthquake, we conducted seismic structure survey and seismicity observations in the Japan Trench region as described below.

(1) Deployment and recovery of ocean bottom seismometers (OBSs)

We deployed 66 OBSs for wide-angle seismic refraction and reflection survey along the survey line of A6e and 65 OBSs were recovered.

(2) Airgun shooting

We shot the airgun array of R/V Kairei along A6e and A4 with a hydrophone streamer cable.

(3) OBS deployment for seismicity observations

We deployed 35 OBSs for seismicity observations in trench-outer rise region.

(4) Bathymetry, magnetics and gravity observation

During the cruise, bathymetry, magnetics and gravity data have been recorded continuously by multi-beam echo sounder (MBES), three-component magnetometer and gravity meter, respectively.