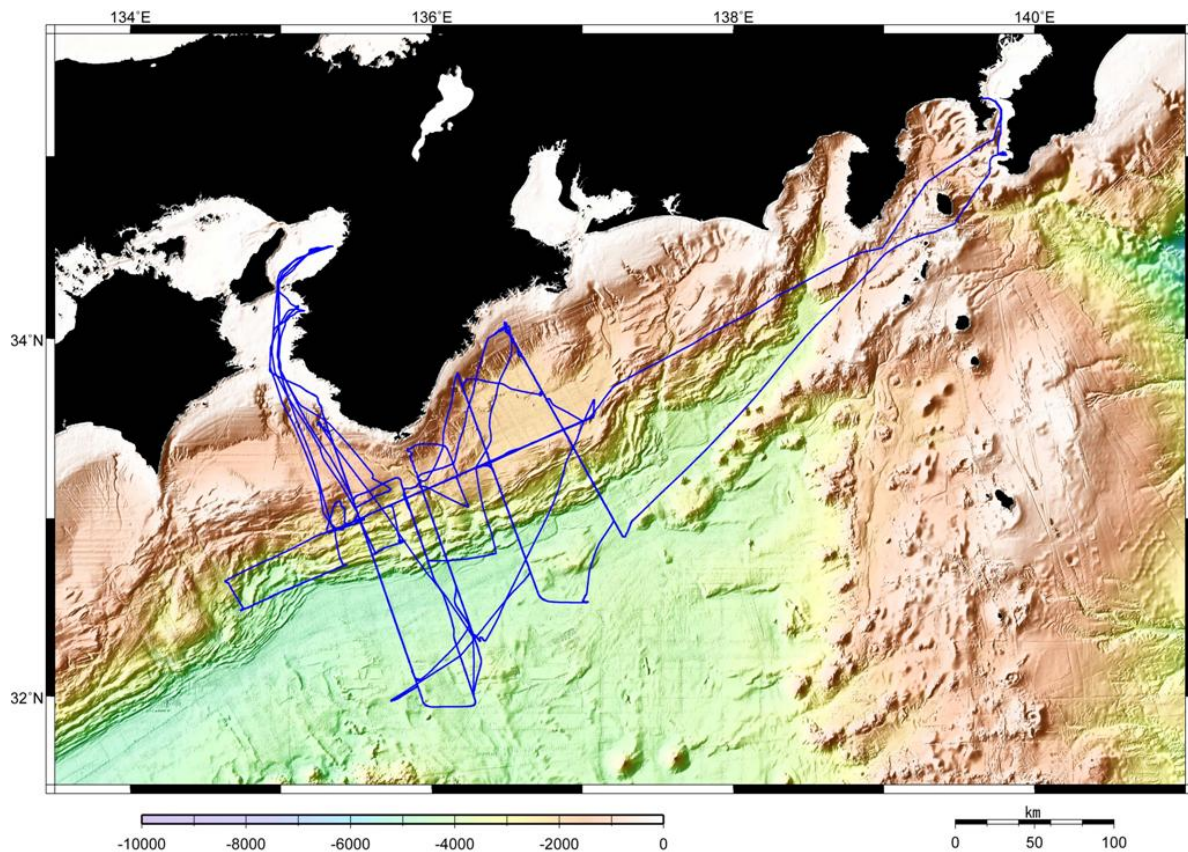


Cruise summary

1. Cruise Information :

- (1) Cruise number, Ship name: KR11-09, R/V Kairei
- (2) Title of the cruise:
2011FY “Seismic study and earthquake observation study off Kii Peninsula”
- (3) Chief Scientist [Affiliation]: Mikiya YAMASHITA [JAMSTEC]
- (4) Representative of Science Party [Affiliation]: Yoshiyuki KANEDA [JAMSTEC]
- (5) Title of proposal:
Seismic survey and observation study of evaluation for large earthquake synchronization in the Nankai Trough
- (6) Cruise period, Port call:
2011/09/13-10/10, JAMSTEC (Yokosuka) to JAMSTEC (Yokosuka)
- (7) Research Area: off Kii Peninsula
- (8) Research Map:



2. Overview of Observation :

(1) Objectives :

This research cruise was conducted as a part of the study of “Research program concerning interaction between the Tokai, Tonankai, and Nankai Earthquakes” funded by the Ministry of Education, Culture, Sports, Science, and Technology of Japan.

In the Nankai Trough seismic subduction zone, a number of great earthquakes ($M > 8$), such as 1944 Tonankai and 1946 Nankai earthquakes, have been repeatedly occurred. Notable features in this region are the segmentation of the rupture zones and synchronization of these segments. To understand the structure factors controlling the segmentation and the synchronization of rupture zones, it is necessary to reveal the detailed structure variations and seismic activities in this subduction zone. The objectives of this cruise are to reveal detailed seismic structure and seismic activity around off Kii Peninsula in the Nankai Trough.

(2) List of observation instruments :

1) Recovery of 9 OBSs around off Shikoku and Kii Peninsula

9 OBSs were recovered, although 10 OBSs was planned to recover during this cruise..

2) Deployment of ocean bottom seismometers (OBSs)

154 OBSs were deployed around off Kii Peninsula although 157 OBSs was planned to deploy during this cruise.

3) Seismic refraction/wide-angle reflection survey

A seismic refraction/reflection survey using a tuned air-gun array of 7,800 cubic inch and OBSs was conducted in 6 survey lines (KI01, KI02, KI03, KI04 and KI05) off Kii Peninsula. A part of lines KI03 and KI05 was towed with 444 channel hydrophone streamer with a 12.5 group interval.

4) Multi-channel seismic (MCS) reflection survey

Multi-channel seismic reflection surveys were conducted in 3 lines (KI01, KI02 and KI06) using the 444 channel hydrophone streamer with a 12.5 m group interval. This survey on TK07 line could not be conducted because of the bad sea condition.

5) Bathymetry, Gravity and Geomagnetic observation

During this cruise, bathymetry, gravity and geomagnetic data have been recorded continuously by SEABEAM2112, gravity meter (KSS-31) and three-component magnetometer (SFG1214), respectively.

6) Temperature and Conductivity observation for the correction of sonic speed

Expendable-Bathy Thermograph (XBT) has been conducted to correct the sonic speed for the bathymetry survey.