

Cruise summary

1. Cruise Information :

(1) Cruise number, Ship name: KR10-11, R/V Kairei

(2) Title of the cruise:

2010FY "Seismic study and earthquake observation study off Shikoku"

(3) Chief Scientist [Affiliation]: Takeshi SATO [JAMSTEC]

(4) Representative of Science Party [Affiliation]: Yoshiyuki KANEDA [JAMSTEC]

(5) Title of proposal:

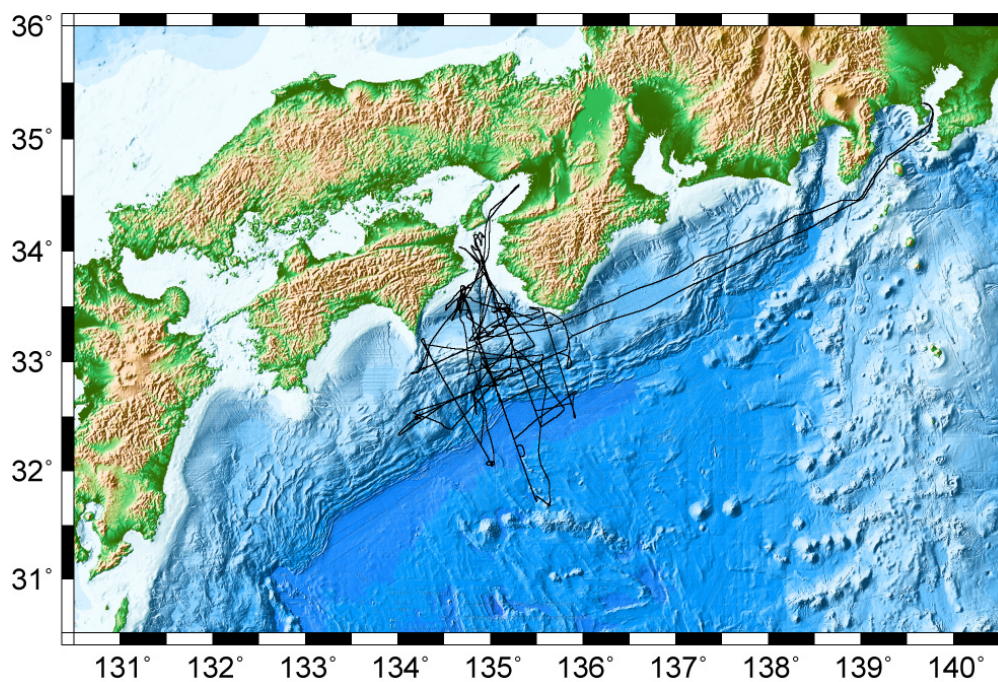
Seismic survey and observation study of evaluation for large earthquake synchronization in the Nankai Trough

(6) Cruise period, Port call:

2010/10/13-11/11, JAMSTEC (Yokosuka) to JAMSTEC (Yokosuka)

(7) Research Area: from off Shikoku to off Kii Peninsula and Kii channel

(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 from off Shikoku to off Kii Peninsula in the Nankai Trough and in the Kii channel..

(2) List of observation instruments :

1) Deployment of ocean bottom seismometers (OBSs)

174 OBSs were deployed from off Shikoku to off Kii Peninsula and in the Kii channel because of the bad sea condition, although 200 OBSs was planned to deploy during this cruise.

2) 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 on 6 survey lines (TK01-06 lines) from off Shikoku to off Kii Peninsula and in the Kii channel, although this survey was planned to conduct on 7 lines (TK01-07 lines). This survey on TK07 line could not be conducted because of the bad sea condition. On TK03 line, this survey and MCS survey were conducted, simultaneously, using the 444 channel hydrophone streamer with a 12.5 m group interval. A volume of a tuned air-gun array is 5,850 cubic inch on a part of TK02 line, and is 7,600 or 7,350 cubic inch on a part of TK03 line because of an air-gun system trouble.

3) Recovery of 5 OBSs with the anchor and one OBS in the Kii channel

5 OBSs with their anchors and one OBS deployed the shallow area where the water depth is below 200 m in the Kii channel (Site 19-24) were recovered.

4) Multi-channel seismic (MCS) reflection survey

On TK03 line, MCS survey using a tuned air-gun array of 7,800 cubic inch and a 444 channel hydrophone streamer with a 12.5 m group interval and the seismic refraction/wide-angle reflection survey were conducted, simultaneously. However, other lines on this survey could not be conducted during this cruise because of the bad sea condition.

5) Bathymetry, Gravity and Geomagnetic observation

During this cruise, bathymetry, gravity and geomagnetic data have been recorded