

Cruise Summary

1. Cruise Information

- **Cruise ID:** YK18-13C
- **Name of vessel:** R/V YOKOSUKA
- **Title of cruise:** Research project for compound disaster mitigation on the great earthquakes and tsunamis around the Nankai trough region
- **Title of project:** Research project for compound disaster mitigation on the great earthquakes and tsunamis around the Nankai trough region
- **Chief Scientist [Affiliation]:** Tsutomu Takahashi [JAMSTEC]
- **Title of proposal:** Research project for compound disaster mitigation on the great earthquakes and tsunamis around the Nankai trough region
- **Representative of Science Party [Affiliation]:** Shuichi Kodaira [JAMSTEC]
- **Cruise period:** Sep. 29, 2018 – Oct. 11, 2018
- **Ports of departure / call / arrival:** From Yokosuka JAMSTEC to Oita port
- **Research area:** Ryukyu islands
- **Research map**

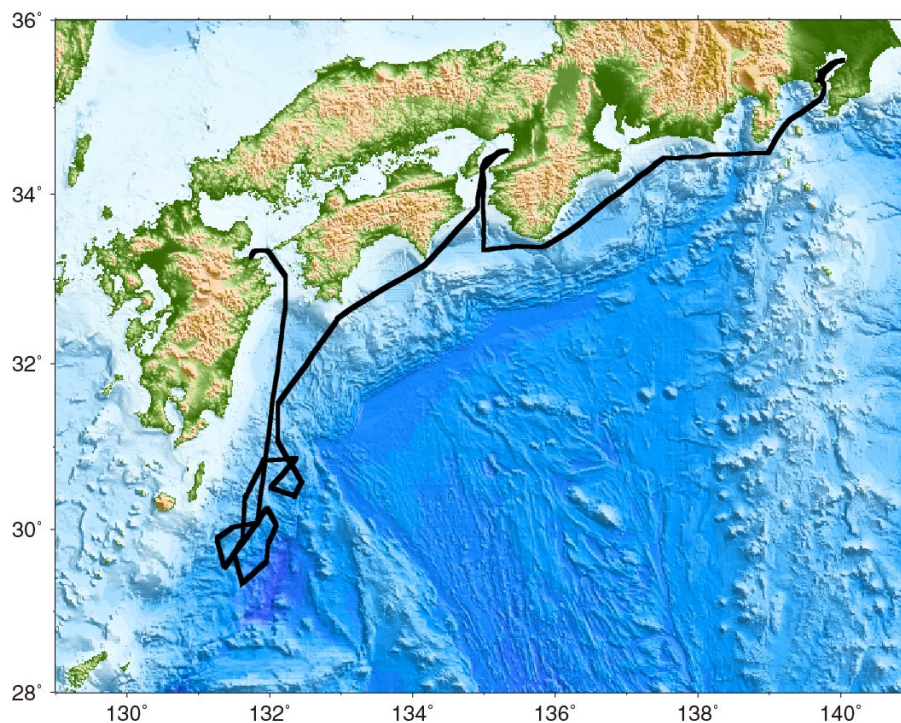


Fig. 1. Ship track during YK18-13C cruise

2. Overview of Research Activities

(1) Objectives

In Ryukyu subduction zone, permanent seismic observatories are deployed only on islands, and therefore island distribution causes a significant restriction of estimations of seismicity and underground structures. To elucidate details of seismicity, lithospheric structures, and plate geometry of this subduction zone, we conduct a series of passive and active seismic surveys around Ryukyu arc, as a part of research project “Research project for compound disaster mitigation on the great earthquakes and tsunamis around the Nankai trough region” funded by Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan. In YK18-13C cruise, we recovered 10 Ocean Bottom Seismometers (OBSs) off the east coast of Tanega-shima, and deployed 10 OBSs off the southeast coast of Tanega-shima, Japan.

(2) List of observation

(a) OBS recovery and deployment

We have recovered 6 Long-Term OBSs (LTOBS) and 4 broadband OBSs (BBOBSs) off east coast of Tanega-shima. Each recovered LTOBS is equipped with a three component 1Hz seismometer (LE3D/lite, Lennartz electronic). A BBOBS system is composed of a three-component broadband seismometer (CMG-3T, Guralp Systems) and a differential pressure gauge. A pressure-temperature logger (RBR TD 10000, RBR Ltd.) was fixed on the rim of each BBOBS.

We have also deployed 5 LTOBSs and 5 BBOBSs off the southeast coast of Tanega-shima. Deployed LTOBS is equipped with the 1Hz seismometer or a 120s seismometer (Trillium Compact 120, Nanometrics). At 5 sites (C01, C02, C05, C06, and C10), the pressure-temperature logger was fixed on the rim of the BBOBS or LTOBS.

(b) Bathymetry, magnetic, and gravity observations:

Bathymetry, magnetic, and gravity data were acquired continuously throughout this cruise.

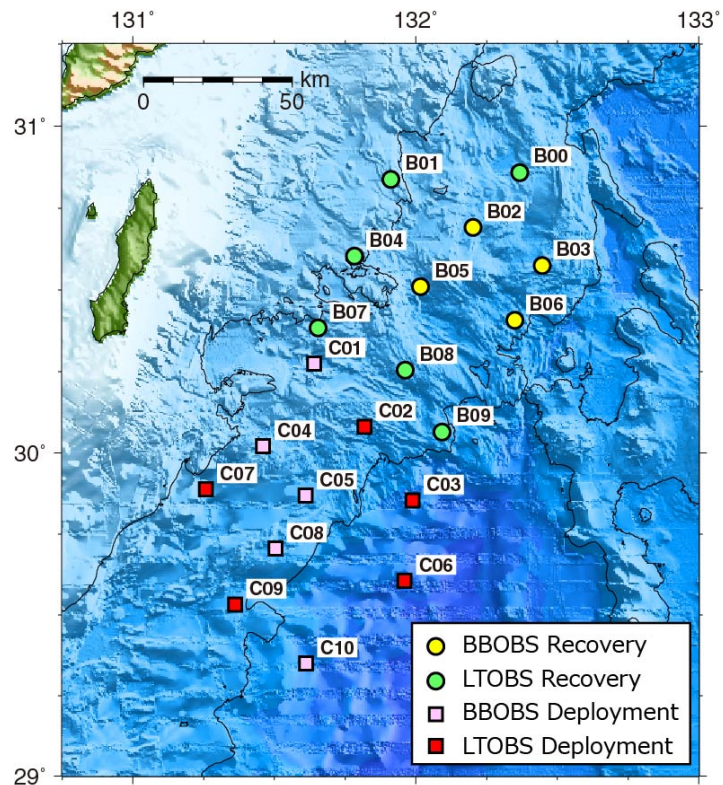


Fig. 2. Map of recovered and deployed OBSs.