Cruise Summary

1. Cruise Information

(1) **Cruise ID:** KM22-10

(2) **Vessel:** R/V KAIMEI

(3) **Cruise Title**

3D seismic survey to image plate boundary faults in the subduction zone

(4) **Chief Scientist**

Ryuta Arai (JAMSTEC)

(5) **Representative of the Science Party**

P22-09_2_3 Seiichi Miura (JAMSTEC)

(6) **Research Titles**

P22-09_2_3 High-resolution research of marine seismogenic faults in wide areas: Seismic survey and earthquake observation

(7) **Cruise Period**

2022/08/10 - 2022/09/08

(8) **Ports of departure/call/arrival**

Yokosuka - Yokosuka

(9) **Research Area**

Nankai Trough

2. Overview of the Observation

The cruise KM22-10 aims at revealing three-dimensional geometry and physical properties of faults in the Nankai Trough region as described in the mid-term to long-term research plan of JAMSTEC. The survery area ranging from the Kumano-nada to Enshu-nada is known to have generated the Showa Tonankai earthquake in 1944 and host slow earthquakes including tremor and very low freuqency earthquakes on the updip area of the seismogenic zone. In 2004, earthquakes with a magnitude of 7 occurred inside the subducting Philippine Sea plate. To reveal structural controls on the variety of slip behaviors, we perfored airgun shooting for refraction surveys on two across-trough profiles along which ocean bottom seismographs were deployed during the YK22-14 cruise. carry out a seismic refraction survey. To understand the regional geometry and physical properties of

the plate boundary faults in three dimension, we also carried out multi-channel seismic (MCS) reflection surveys along 18 profiles in the N-S direction in the area from off Shionomisaki to Enshu-nada. In addition, we collected MCS reflection data on 7 lines (6 N-S lines and 1 E-W line) around the DONET 2F area to provide site information for subseafloor monitoring observatory.