Cruise Summary

1. Cruise Information

Cruise ID YK21-09S

Name of vessel R/V Yokosuka

Title of cruise "Geophysical sounding of mantle transition zone from deep seafloor: development of improved deep-sea electric field observation system (EFOS-X) and broad-band ocean bottom seismic observation system (NX-2G)"

Chief Scientist [Affiliation]

Hisayoshi Shimizu [Earthquake Research Institute, University of Tokyo]

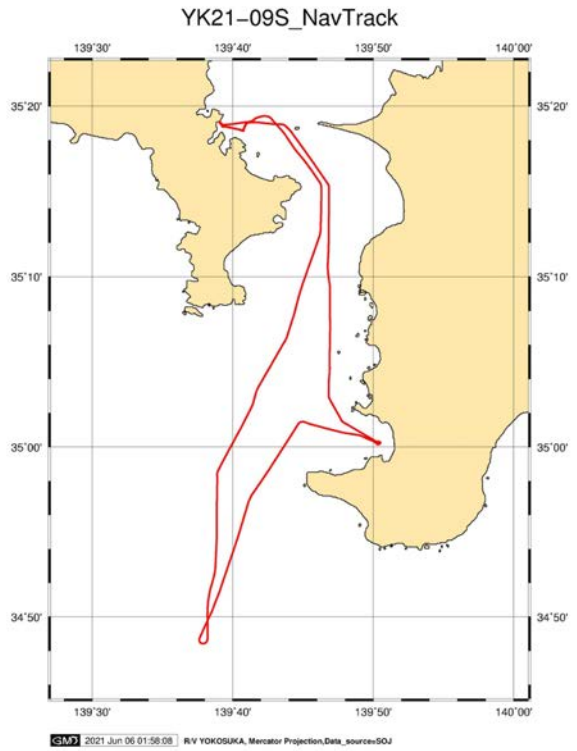
Cruise period Jun. 2 – Jun. 6, 2021

Ports of departure / arrival

Yokosuka (Nissan Pier 6) / Yokosuka (JAMSTEC)

Research area Sea area off the eastern coast of Aogashima [planned]

Research map (Navigation track)



[We could not approach the planned research area due to high wave and wind caused by fronts.]

Title of proposal

Geophysical sounding of mantle transition zone from deep seafloor: development of improved deep-sea electric field observation system (EFOS-X) and broad-band ocean bottom seismic observation system (NX-2G)

Representative of Science Party [Affiliation]

Hisayoshi Shimizu [Earthquake Research Institute, University of Tokyo]

2. Overview of Research Activities

- **Development of EFOS-X and NX-2G for geophysical sounding of mantle transition zone**

We planned to install newly-developed long-baseline electric field observation system, EFOS-X, and an advanced broad band seismic observation system, NX-2G, on the seafloor off the east coast of Aogashima. In addition to the aforementioned observation systems, a standard Ocean Bottom Electro-Magnetometer (OBEM), a Broad-Band Ocean Bottom Seismometer (BBOBS), and an Ocean Bottom Doppler Currentmeter (OBDC) were arranged to be installed near the systems.

A purpose of the experiment was to test the feasibilities of installing the electric and seismic observation systems using Shinkai 6500, including laying a cable of 1 km-long on the seafloor. Obtained data were planned to be applied to the study of the mantle transition zone.

It was not possible to access the research area due to high wave and wind caused by fronts during the cruise. No practical research activities were made.