Cruise Summary

1. Cruise Information

1) Cruise ID: YK10-07

2) Name of vessel: Yokosuka

3) Title of the cruise: Central Japan Sea (YK10-07)

4) Chief scientist [Affiliation]: Ken Ikehara (Geological Survey of Japan, AIST)

5) Representative of the scientific party [Affiliation]: Ken Ikehara (Geological Survey of Japan, AIST)

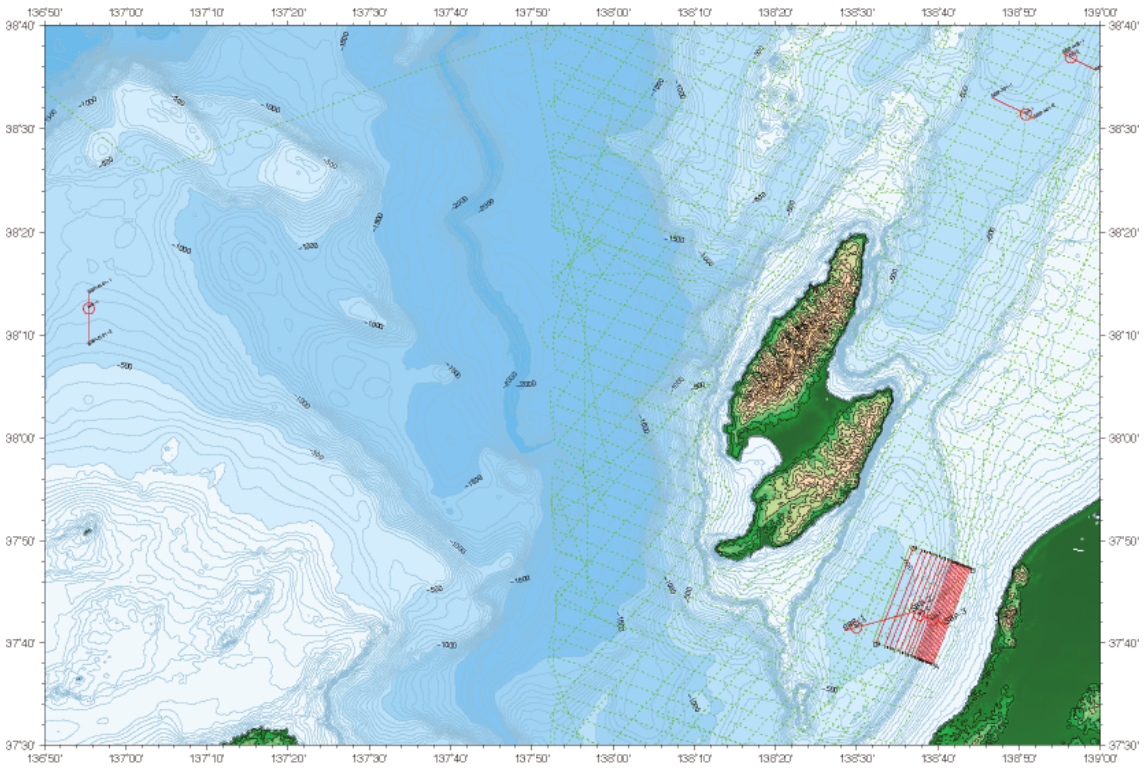
6) Title of proposal: Quaternary techrostratigraphy in the Japan Sea and its application for paleoceanographic and sedimentological studies

7) Cruise period: June 24, 2010 – July 3, 2010

8) Ports of call: Yokosuka (JAMSTEC) – Yokosuka (JAMSTEC)

9) Research area: Japan Sea (off Niigata and north of Noto Peninsula)

10) Research map:



2. Overview of the Observation

1) Purpose and background: The Japan Sea is a marginal sea between

Asian continent and Japanese islands. Due to shallow entrances of the Japan Sea, oceanographic conditions of the Sea have been influenced by eustatic sea level changes and the Asian monsoon fluctuations. Especially, significant changes of surface water properties make different temporal variation in the planktonic foraminifer oxygen isotope signals in the Japan Sea from those in the normal oceans. Also, shallow water depth of carbonate compensation depth in the Japan Sea prevents the adaption of radiocarbon age determination using planktonic foraminiferal tests. Under these conditions, tephrochronology is a useful tool for age datum and core correlation. Framework of the late Quaternary major tephrostratigraphy of the Japan Sea has been established, but the knowledge on the minor tephras is still not enough. To establish the detailed tephrochronology in the Japan Sea, we proposed to collect some core samples from the central Japan Sea. The expected results allow us to much detailed stratigraphy of the late Quaternary Japan Sea, and to correlate marine climatical and geological events directly with on-land and lacustrine events.

2) Observations: We used 10-m or 15-m long piston corer to obtain marine sediment cores intercalating tephra beds from off Niigata and north of Noto Peninsula. For understanding the sedimentary processes of the Sado Basin (a target area), MBES also was carried out.

3) Instruments and methods:

Sediment sampling by a 10-m or 15-m long piston corer

Bathymetry by multi-narrow beam echosounder (Sea Beam)

4) Research results:

Nine sediment cores were collected from 6 sites. A standard stratigraphy in late Quaternary was recovered from north of Noto Peninsula intercalating several volcanic ash layers. Another ash layer was found in the possible LGM sequence in a core taken from the southern Mogami Trough. Sedimentary environments on the landward slope of the Sado Basin were inferred from sediment lithology.