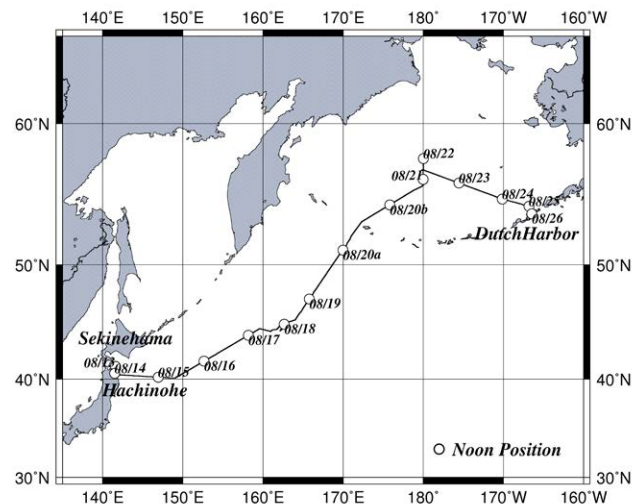


Cruise Summary

1. Cruise Information

- Cruise ID: MR13-05
- Name of vessel: R/V MIRAI
- Title of the cruise: Investigation of iron forms within sediment-water interface in Bering Sea
- Chief scientist [Affiliation]: Saburo Sakai [JAMSTEC]
- Representative of the Science Party [Affiliation]: Noriko Kawamura [Japan Coast Guard Academy]
- Title of proposal: Investigation of iron forms at sediment-water interface in Bering Sea
- Representative of the Science Party [Affiliation]: Nobuo Sugimoto [NIES]
- Title of proposal: Study of distribution and optical characteristics of ice/water clouds and marine aerosols
- Representative of the Science Party [Affiliation]: Yugo Kanaya [JAMSTEC]
- Title of proposal: Regional-wide observations of gases and aerosols in the maritime atmosphere toward elucidation of global biogeochemical cycles
- Representative of the Science Party [Affiliation]: Kazuma Aoki [Toyama Univ.]
- Title of proposal: Maritime aerosol optical properties from measurements of Ship-borne sky radiometer
- Representative of the Science Party [Affiliation]: Masao Nakanishi [Chiba Univ.]
- Title of proposal: Tectonic history of the mid-Cretaceous Pacific Plate
- Representative of the Science Party [Affiliation]: Takeshi Matsumoto [Ryukyu Univ.]
- Title of proposal: Standardization of marine geophysical data and its application to the ocean floor geodynamics studies
- Cruise period: 13rd Aug., 2013 – 26th Aug., 2013
- Ports of call: Sekinehama (8/13) – Hachinohe (8/14) – Dutch Harbor (8/26)
- Research area: western North Pacific and Bering Sea

- Research map



2. Overview of the Observation

- Overview of the observation

[On board study] Objective of this cruise is to understand the total dissolved iron distribution, elution amount, and diffusion rate (from sediment to water column) at the sediment-water interface.

[Not on board study] This cruise was implemented for five tasks of “not on board study”. (1) To study distribution and optical characteristics of ice/water clouds and marine aerosols using a two-wavelength polarization Mie lidar (Sugimoto; NIES). (2) To understand the optical characteristics of aerosols and gas concentrations (CO, O₃) using MAX-DOS methods (Kanaya; JAMSTEC). (3) To study distribution and optical characteristics of marine aerosols by using a ship-borne sky radiometer (Aoki; Toyama Univ.). (4) To measure the sea surface magnetic field by cesium magnetometer and sub-bottom profile to get a new knowledge about tectonic history of the mid-Cretaceous Pacific Plate (Nakanishi; Chiba Univ.). (5) To measure the sea surface gravity, sea surface magnetic field and cesium magnetometer, in order to standardize the marine geophysical data, and in order to apply to the ocean floor geodynamics studies (Matsumoto; Ryukyu Univ.).

- **Scientific gear of MR13-05 activity**

- Multiple cores (3 stations)
- Chemical properties measurement of sediment (Portable DO and pH sensor)
- Visual core description (Core photograph and smear slide)
- MSCL and soft X-ray measurement of sediment
- ADCP continuous observation
- Sea surface water monitoring system
- Meteorological observation system
- Seabeam3012, Sub-bottom Profiler: Bathy2010
- Geophysical continuous observation (Magnetometer, Gravity meter, Cesium Precession Magnetometer)