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**THE " OSHORO MARU " CRUISE 211
TO THE OYASHIO REGION**

IN JANUARY 2010

1. Cruise Itinerary

Cruise 211

Departure from Hakodate

Jan. 12 2010

Start hydrographic research (OS10001)

13

Finish hydrographic research (OS10001)

13

Return to Hakodate

15

Total coverage 390.7 miles

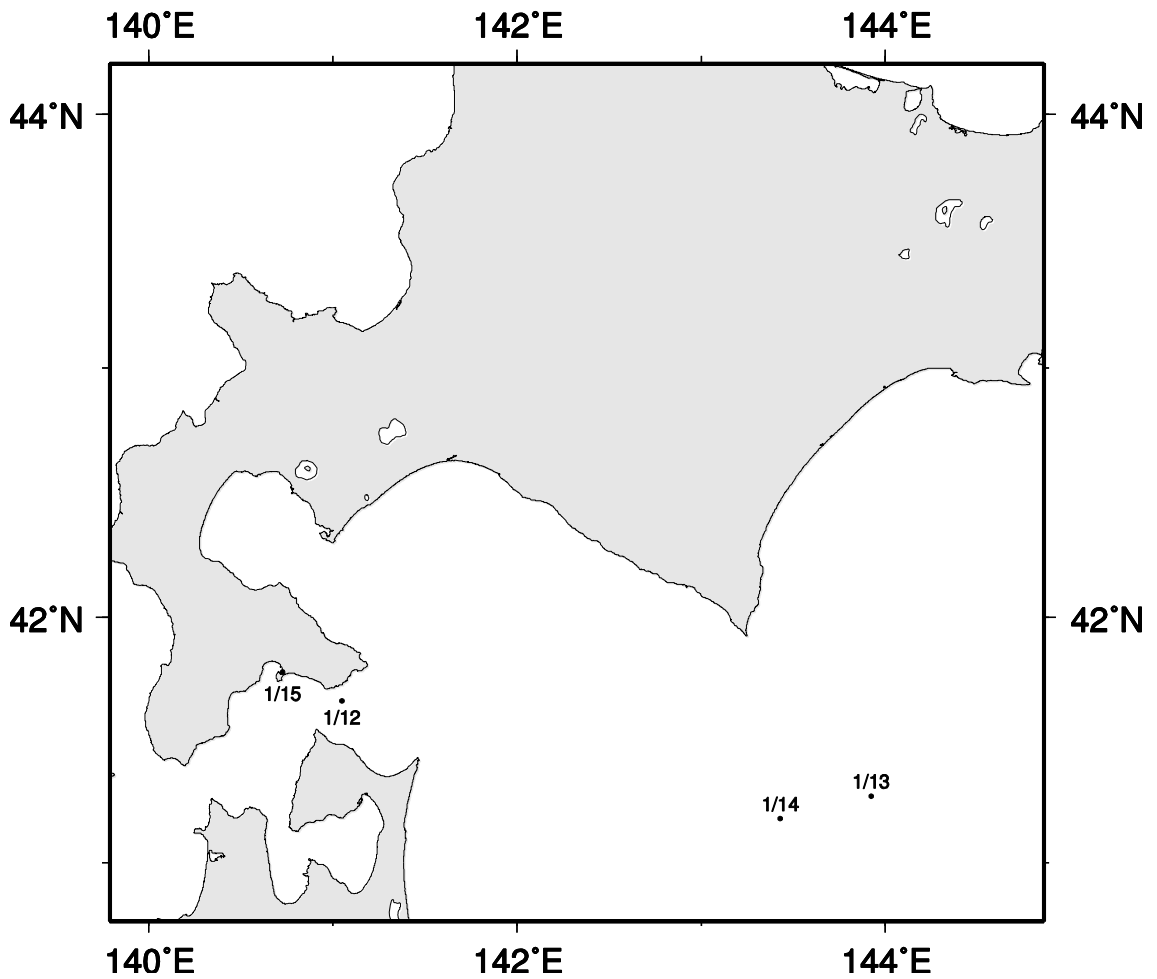


Figure 1. Noon position

2. Vessel Personnel

| | | | |
|----------|----------------|---------------------|-------------------|
| Captain: | | Associate Professor | Shogo Takagi |
| Crew: | First Officer | Instructor | Yoshihiko Kamei |
| | Second Officer | Instructor | Keiichiro Sakaoka |
| | Second Officer | Technical official | Naoki Hoshi |
| | Third Officer | Technical official | Takuzo Abe |
| | Chief Engineer | Instructor | Jyunichi Kimura |
| | And 24 men | | |

Cruise 211

| | | | |
|-----------------|-------------------------|--|-------------------|
| Research Staff: | Associate Professor | (Laboratory of Marine Biodiversity) | Atsushi Yamaguchi |
| | Senior Curator | (Department of Botany, National Museum of Nature and Science) | Akihiro Tuji |
| | Research Student | (Institute of Geology and Paleontology, Graduate School of Science, Tohoku University) | Kaoru Ogane |
| | Graduate Students | | 2 persons |
| | Under Graduate Students | | 4 persons |
| | Total | | 39 persons |

3. Items of Research

| | | |
|----------------------------|--------|------------|
| Hydrographic observations: | Fig. 2 | Table 1, 2 |
| Plankton Sampling | | Table 3 |

4. Data on Temperature, Salinity and Computed Dynamic Depth Anomaly

Hydrographic work on deck and the data processing were made by the deck officers, crews, research staff and cadets of the “Oshoro Maru”. Temperature and salinity were measured by CTD (Seabird SBE9Plus and SBE-19). Dynamic computations were made using a desk-top computer aboard the “Oshoro Maru”.

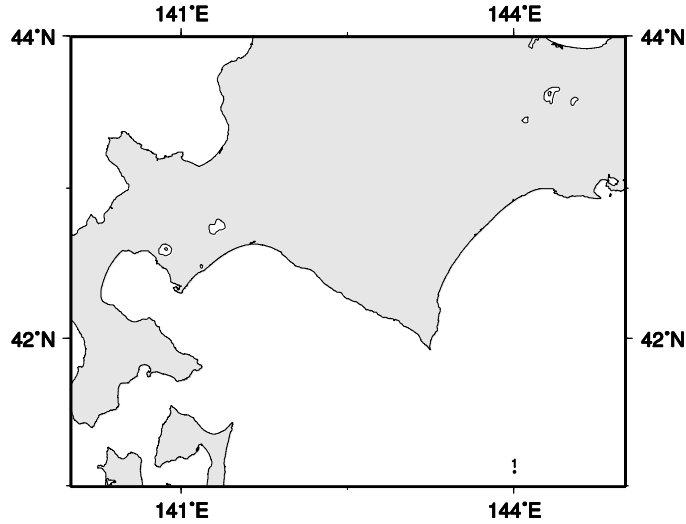


Figure 2. Oceanographic station

Table 1. List of Oceanographic Station

| Station | Lat.(*) | Long.(*) | Date | S.M.T | T.Z. | Depth | COL. | TR. | S.S.T. | WR. | Remark |
|---------|----------|-----------|------|-------|------|-------|------|------|--------|-----|------------|
| OS10001 | 41-06.0N | 144-00.0E | 1/13 | 1300 | 9 | 3417 | 4 | 14.7 | 1.5 | - | 9Plus-0769 |

(*) : Fixed position by Global Positioning System

Table 2. Oceanographic data

| Station | OS10001 | | |
|-----------|-----------|--------|--------|
| Longitude | 144-00.1E | | |
| Latitude | 41-06.4N | | |
| Depth(m) | 3417 | | |
| Press. | Temp. | Sal. | SIG-T |
| 5 | 4.372 | 33.262 | 26.366 |
| 10 | 4.380 | 33.263 | 26.365 |
| 20 | 4.381 | 33.263 | 26.366 |
| 30 | 4.379 | 33.262 | 26.365 |
| 40 | 4.381 | 33.263 | 26.365 |
| 50 | 4.391 | 33.264 | 26.365 |
| 75 | 4.439 | 33.272 | 26.366 |
| 100 | 4.059 | 33.282 | 26.414 |
| 125 | 3.252 | 33.353 | 26.548 |
| 150 | 3.185 | 33.470 | 26.648 |
| 175 | 2.999 | 33.527 | 26.709 |
| 200 | 2.946 | 33.554 | 26.736 |
| 250 | 2.863 | 33.656 | 26.824 |
| 300 | 3.506 | 33.814 | 26.891 |
| 400 | 3.330 | 33.917 | 26.990 |
| 500 | 3.178 | 34.039 | 27.102 |
| 600 | 3.032 | 34.140 | 27.196 |
| 700 | 3.020 | 34.224 | 27.264 |
| 800 | 2.953 | 34.304 | 27.334 |
| 900 | 2.821 | 34.352 | 27.384 |
| 1000 | 2.728 | 34.396 | 27.427 |
| 1200 | 2.531 | 34.462 | 27.497 |
| 1500 | 2.259 | 34.536 | 27.579 |
| 2000 | 2.043 | 34.577 | 27.630 |
| 2500 | 1.843 | 34.620 | 27.679 |
| 3000 | 1.583 | 34.663 | 27.733 |

5. Data on plankton collected by vertical hauls with a single or twin NORPAC net.

Vertical hauls with a single or twin-NORPAC net were made at hydrographic stations. This net was composed of 45 cm mouth diameter and 180 cm long conical one which was made of GG54 and XX13 having 0.33 mm and 0.10 mm mesh, respectively. The net was lowered to the estimated depth of 150 m, 500 m or near the bottom when the bottom depth was shallower than 150 m, and immediately hauled to the surface at a speed about 1 m s⁻¹. A flowmeter was mounted at the center of mouth of the net to estimate the volume water filtered. Sampling was conducted by research staffs and measurement of wet weight of the samples were made by A. Yamaguchi, K. Ishii, K. Matsuno, R. Saito, K. Ohgi, Y. Onishi, T. Homma, R. Ohashi, C. Tsukazaki, A. Kuroda, Y. Abe, M. Kawaguchi, T. Shiota, S. Mizuhara, K. Moribe and J. Fukuda (Laboratory of Marine Biology).

Table 3. Data on plankton collected by vertical hauls with a single or twin NORPAC net

GG54: 0.33 mm mesh, XX13: 0.10 mm mesh.

| Station no. | Position | | | S.M.T. | | Length of wire (m) | Angle of wire (°) | Depth estimated by wire (m) | Kind of cloth | Flowmeter | | Estimated volume of water filtered (m ³) | Wet weight (g) | | Sample no. | | |
|-----------------------------|----------|--------|---|---------|-------|--------------------|-------------------|-----------------------------|---------------|-----------|---------|--|----------------|-------------------------|------------|--|-------|
| | Lat. (N) | Lon. | E | Date | Hour | | | | | No. | Reading | | per haul | per 1000 m ³ | | | |
| OS10001 (off Cape Erimo) | 41-05 | 144-01 | E | 13 Jan. | 15:22 | 154 | 13 | 150 | GG54 | 1858 | 1582 | 23.14 | 0.7 | 32 | 10001 | | |
| | | | | | | | | | | | XX13 | 3006 | 1650 | 23.92 | | | 10002 |
| | | | | | 15:34 | 532 | 20 | 500 | GG54 | 1858 | 6022 | 88.07 | 12.2 | 138 | 10003 | | |
| | | | | | | | | | | | XX13 | 3006 | 5600 | 81.19 | | | 10004 |

- 1) Exclusively phytoplankton
- 2) Including some fragments of medusae.
- 3) *Neocalanus* abundant.
- 4) Gelatinous zooplankton abundant.
- 5) *Salpida* abundant.
- 6) *Chaetognaths* abundant.

6. Data on calibration of flowmeters

Flowmeters used for plankton nets were calibrated once in the cruise.

Table 4. Calibration data on flowmeters used for a twin or single NORPAC net and other kind of nets. 50-m wire out near Hakodate, 15 January 2010.

| Flowmeter No. | Wire length (m) | Revolution | | | | | | | | Mean |
|---------------|-----------------|------------|------|------|-----|------|------|-----|------|------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| RG1858 | 50 | 623* | 538* | 539 | 539 | 525* | 560* | 548 | 549 | 544 |
| RG3006 | 50 | 651* | 544 | 537* | 540 | 540* | 560 | 550 | 562* | 549 |

*: omitted from calculation

