

## Cruise Summary

### 1. Cruise information

Cruise ID: KH-15-J01

Research vessel: HAKUHO MARU

Cruise title: Response of marine ecosystem to the ocean acidification in the subarctic western North Pacific

Cruise period (port call): 29 June (Harumi Pier, Tokyo) – 13 July 2015 (Harumi Pier, Tokyo)

Research area: The subarctic western North Pacific, Station K2 (47°N, 160°E)

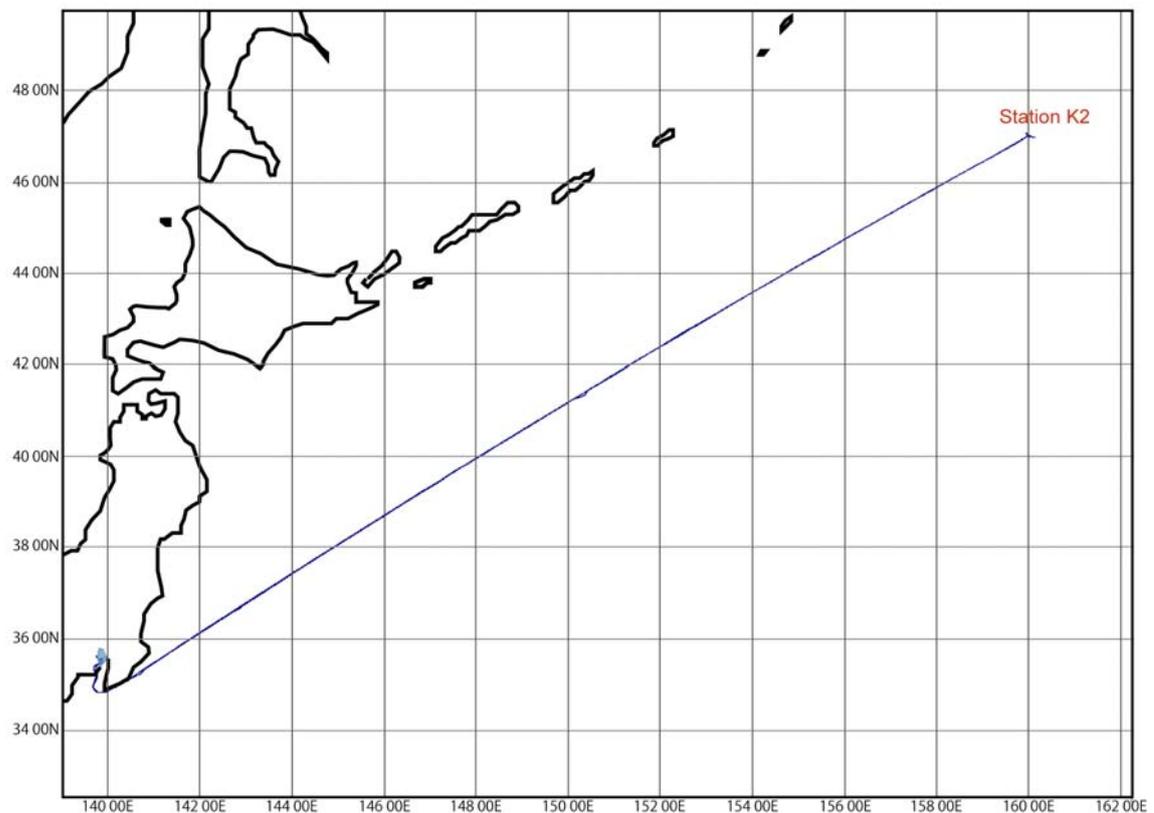
Chief Scientist: Tetsuichi Fujiki (RCGC/JAMSTEC)

Deputy Chief Scientist: Minoru Kitamura (RCGC/JAMSTEC)

Representative of the Science Party: Tetsuichi Fujiki (RCGC/JAMSTEC)

Proposal title: Response of marine ecosystem to the ocean acidification in the subarctic western North Pacific

Cruise truck:



## 2. Research brief

### Purpose of research:

The main purpose of this research is to investigate the plankton community response to the progress of ocean acidification in the western subarctic North Pacific.

### Content of research:

We conducted the following studies at time-series station K2 (47°N, 160°E) in the western subarctic North Pacific.

- (a) Physical factors related to the progress of ocean acidification
- (b) Impact assessment of ocean acidification on marine organisms based on dissolved chemical constituents
- (c) Relationship between phytoplankton community and ocean acidification
- (d) Relationship between zooplankton community and ocean acidification
- (e) Measurements of carbonate shell density of planktic foraminifers and pteropods by the Micro-focus X-ray CT
- (f) Performance evaluation test of the Hybrid CO<sub>2</sub>-pH sensor

### Observations and operations:

- (1) Recovery of BGC mooring and deployment of hybrid profiling buoy system
- (2) CTD cast and water sampling/biochemical analysis
- (3) Plankton sampling by using the VMPS, ORI and NORPAC nets
- (4) Particle collection by using in situ filtration system
- (5) Assessment of phytoplankton photosynthesis by fast repetition rate fluorometry
- (6) On-deck incubation experiments
- (7) Measurements of shortwave and longwave radiation
- (8) Upper ocean current measurements by shipboard ADCP
- (9) Sea surface water sampling
- (10) Performance evaluation test of the Hybrid CO<sub>2</sub>-pH sensor