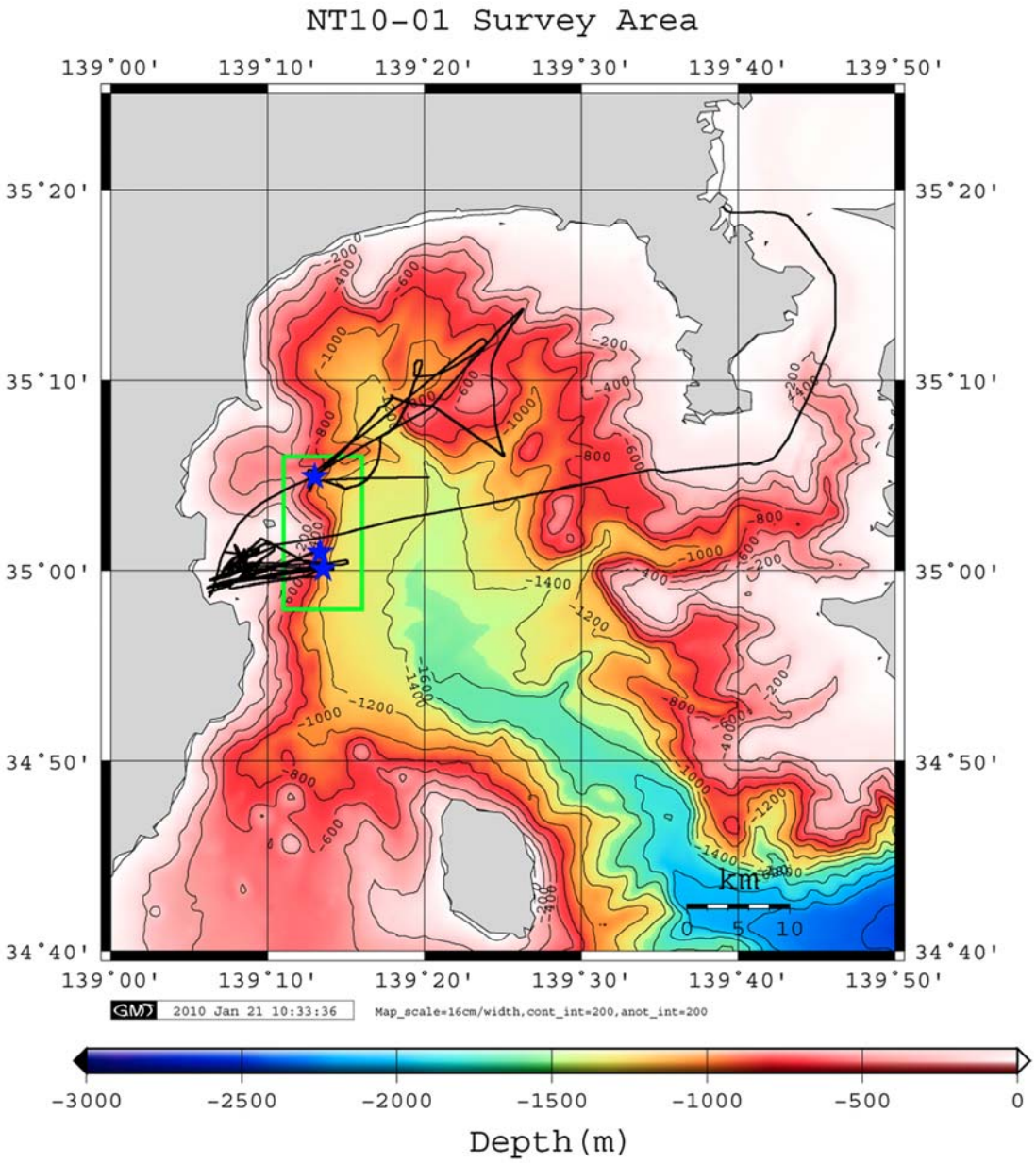
Summary of cruise NT10-01

1. Cruise Information

Cruise number: NT10-01
Ship name: R/V Natsushima（海洋調査船「なつしま」）
Submersible: ROV Hyper-Dolphin（無人探査機「ハイパードルフィン」）
Title of the cruise: Succession patterns and colonization mechanisms of chemosynthetic organisms associated to whale falls in Sagami Bay（初島北東沖鯨骨生物群集の遷移と移入機構に関する研究）
Chief Scientist: Florence PRADILLON (Jamstec)
Proposal numbers and titles:
S09-79: Succession patterns and colonization mechanisms of chemosynthetic organisms associated to whale falls in Sagami Bay（初島北東沖鯨骨生物群集の遷移と移入機構に関する研究） (F. Pradillon)
S09-38: What is biological difference between *Calyptogena soyoae* and *C. okutanii*? （シロウリガイとシマイシロウリガイの違いは何か？）(K. Fujikura)
S09-28: Long term monitoring of bidimentional O2 profiles at the sediment-water interface in Sagami Bay（堆積物－水境界における親生物素循環の解明のための、幅、奥行き、深さ、時間の四次元観測手法の確立） (K. Oguri)
Cruise period: January 12 - 19, 2010
Port call: January 12 Departure from JAMSTEC Yokosuka（横須賀本部出港）
January 19 Arrival at JAMSTEC Yokosuka（横須賀本部入港）
Research Area: Sagami Bay（相模湾）, within the area located between the following coordinates: 35°00.0'N - 139°12.0'E and 35°05.0'N - 139°14.0'E. Depth: 800 m – 1190 m.



Ship track of the cruise NT10-01

2. Overview of observations

The cruise NT10-01 took place from January 12th to 19th, 2010, in Sagami Bay, onboard the R/V Natsushima and with the ROV Hyper-Dolphin. A total of 9 dives were conducted at different study sites including a whale fall site, cold seeps, and a deep-sea observatory near Hatsushima Island. Different projects were carried out.

Biodiversity, dispersal and colonization mechanisms at whale falls were studied at an experimental site where 2 sperm whale carcasses are implanted since 2005 and 2008 respectively. Almost yearly surveys were performed at this site to observe carcass decay, the establishment of chemosynthesis-dependant animal communities and species succession. During this cruise, we continued to document these processes and compared the two carcasses. Bones were collected as well as surrounding sediments, plankton, benthos and water. Preserved samples and live specimens were brought back to our laboratory where species diversity, reproduction, nutrition and symbiosis will be investigated.

Studies at cold seeps sites were focused on *Calyptogena* clams. Distribution patterns of two coexisting species, reproduction, life-history traits, and symbiosis were investigated through sampling and *in situ* experiments.

The third project involved the long-term monitoring of the interactions between organisms and their chemical environment at the sediment-water interface. During this cruise we recovered a lander with a 2 dimension optopode system that monitored the sea bottom near station off Hatsushima Island for 9 months.

概要

2010 年 1 月 12 日から 19 日まで「なつしま」/「ハイパードルフィン」を用いた NT10-01 航海を相模湾で実施した．計 9 潜航により，3 つの異なるプロジェクトを鯨骨域，湧水域および初島沖長期観測ステーション近傍で実施した．

2005 年と 2008 年に沈設した 2 頭のマッコウクジラ遺骸周辺では，生物多様性，分散，蝟集機構を解明するための調査を実施した．このサイトではほぼ毎年調査を実施しており，化学合成生物群集の形成と遷移に関する情報を蓄積している．本航海でもこのようなプロセスの継続的な記録と海底沈設期間の異なる 2 頭の鯨遺骸間での各種比較を実施した．試料としては，鯨遺骸周辺の堆積物や海水，蝟集するベントス，プランクトン，鯨骨を採集した．試料は冷凍，固定もしくは飼育した状態で持ち帰り，種の多様性，繁殖，栄養摂取，共生について研究室で詳細な研究を実施する予定である．

初島沖湧水域では，生息する 2 種のシロウリガイ類の分布パターンや繁殖，生活史，共生に着目して試料採集と現場実験を実施した．

また堆積物–水境界の生物活動と化学環境との関係を明らかにするための長期観測実験を実施した．本航海では初島沖長期観測ステーション近傍で 9 ヶ月間観測を継続していたランダー（2 次元オプトードシステムを装備）の回収を実施した．