Ferrybased Monitoring in the NEAR- GOOS Region

Hee-Dong Jeong
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Introduction of Ferry Box Monitoring

Concept
The FerryBox is an automated system used for measuring of physical and biogeochemical parameters in surface waters. It is mounted on ‘ships of opportunity’, such as ferries or container ships, on their regular routes across the Sea or on shore-based installations.

Water is pumped from a subsurface inlet into the measuring circuit of multiple sensors. An important feature is the regular automated cleaning and antifouling procedure of the box. Data are transmitted and made available after each transect via the Internet.

Parameters
Basic Oceanographic:
- conductivity/salinity
- turbidity
- dissolved oxygen
- water temperature

Future
- high precision pH (optical) • alkalinity

Biological-chemical:
- chlorophyll-a fluorescence
- algal groups
- nutrients (NOx, NH4, o-PO4, Si)
- pH

http://www.ferrybox.org/
Monitoring in Europe

It is one of the major components of the coastal observatory COSYNA (Coastal Observing System for Northern and Arctic Seas). The principal goal of COSYNA is the construction of a long-term observatory for the German Bight (North Sea).
Results from Measurements in Europe

Ferry Box route and data (salinity, nitrate, o-phosphate and silicate) from a single transect from Halden (NO) to Cuxhaven (DE) in March 2011 compared with automatically collected data and bottle samples (dots) analysed data in the lab.
Monitoring in Korea

Seastar

Maps and charts showing temperature, salinity, and chlorophyll levels in the waters monitored in Korea. Dates indicated are 2013/07/01 and 2013/07/04.
After 9th Typhoon Chan-Hom (30 June – 13 July 2015)

Wind rose diagram in Guryongpo (2015.07.10-14)

Temperature (degree), Salinity (PSU), Chlorophyll (ug/l)

Map showing the path of Typhoon Chan-Hom from 30 June to 13 July 2015.

Map showing the wind rose diagram for Guryongpo from 10 to 14 July 2015.

Maps showing temperature, salinity, and chlorophyll levels in the water column.
Installation system

♣ SBE-45 Thermo-Salino-Graph (Sea Bird Elec.)
- Time Resolution: 1 second
- Clock Stability: 13 seconds/month
- Input Power: 8-30 VDC
- Acquisition Current: 34 milliamps at 8 VDC; 30 milliamps at 12-30 VDC
- Operating Pressure: 34.5 decibars (50 psi) maximum
- Flow Rate: 10 to 30 ml/sec (0.16 to 0.48 gal/min)
- Materials: PVC housing
- Weight: 4.6 kg (10.2 lbs)
- Height: 33.8cm, Width: 13.5cm, Thickness: 7.7cm

♣ WET Labs- WETStar
Installation system

♣ Installation
  - GPS installation (Deck)
  - Inflow and outflow seawater pipe installation (Engine Room)
  - SBE-45 sensor and controller installation (Engine Room)
  - CDMA antenna installation
Possible Ship Line