

JOINT EUROPEAN RESEARCH INFRASTRUCTURE NETWORK FOR COASTAL OBSERVATORIES

HCMR FERRYBOX SYSTEM

Best Practices

FERRYBOX ROUTE



Route: Pireaus-Heraklio

Ship: High-Speed Ferry "Olympic Champion" covering the distance every night in 7 hours (speed > 20 knots).





INSTALLATION



Installed on the Bow thruster department 2 meters below the waterline. This spot is as close as it gets to the seawater input of the ship (5 meters pipe with a filter, 0.5 cm mesh size).





FERRY BOX SYSTEM



HCMR's FerryBox System

Ferry Box System I (-4H- JENA engineering GmbH) originally installed on "Kriti II" in the framework of MFSP and MFSTEP projects

Sensors

- Temperature-Conductivity (Thermo-Salinometer FSI)
- Fluorescence-Turbidity (Scufa II Turner Design)

Plus

- Dissolved Oxygen (Aanderaa optode)
- pH (Meinsberg pH probe)





INSTALLATION



Problems to face before installation

- Corrosion: Previous experience show that there are corrosion issues due to moisture.
- Vibration: Heavy vibrations due to bow thrusters operation and sea waves while cruising.

Limitations: For safety reasons we can NOT drill on the ship, only WELDING is allowed.

Communication and coordination with the FB manufacturer was essential.





INSTALLATION



Design and manufacture “in –house” a new INOX rack with anti vibrating base and connectors.

Use only inox connectors and high pressure pipes for safety reasons.





INSTALLATION



Telemetry box installed on bow open deck.

Safety tank with water level detectors to control the pumps



Seawater output



Seawater input





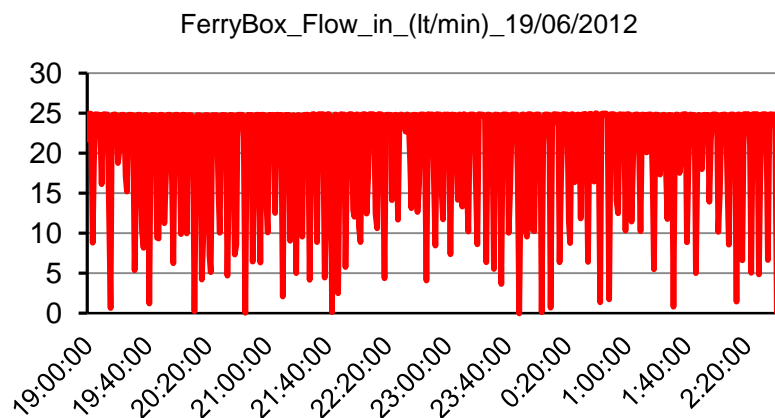
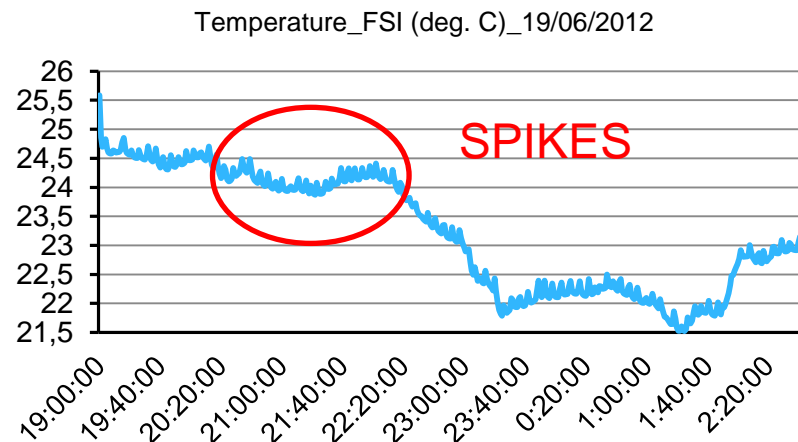
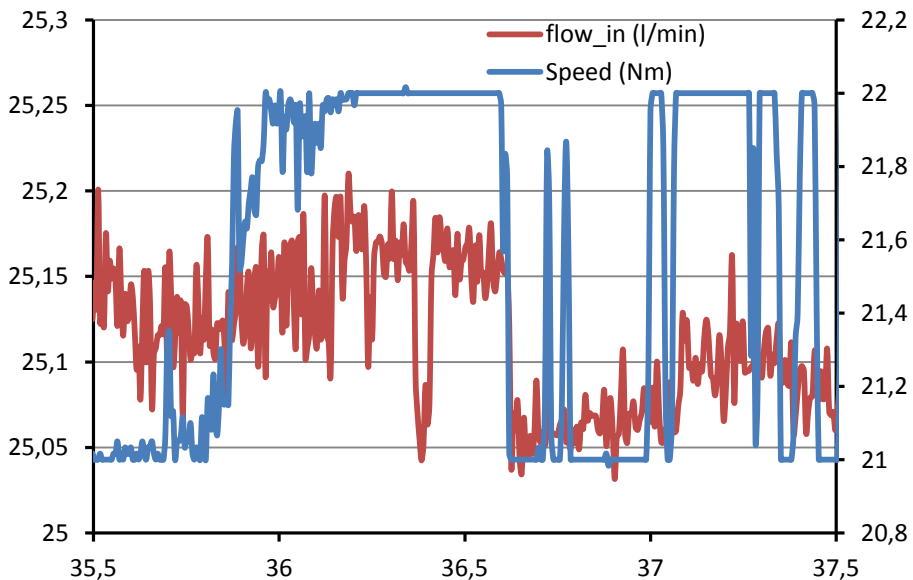
INITIAL SET UP



Seawater input: Requires a steady seawater input of almost 25 lt/min. If not, you get



The spikes was removed with the trimming of the pumps and the valves.





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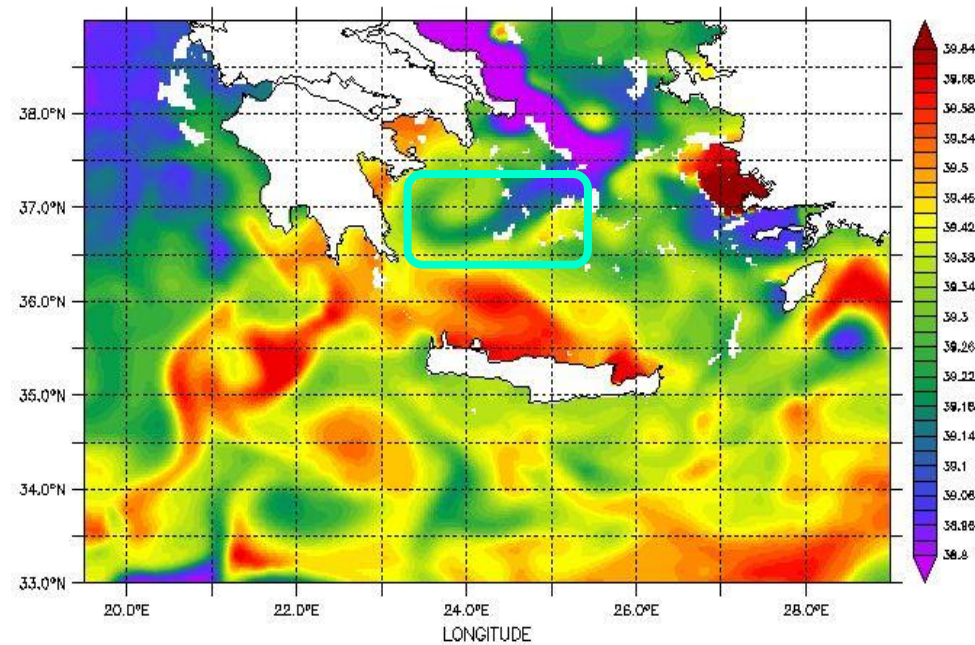
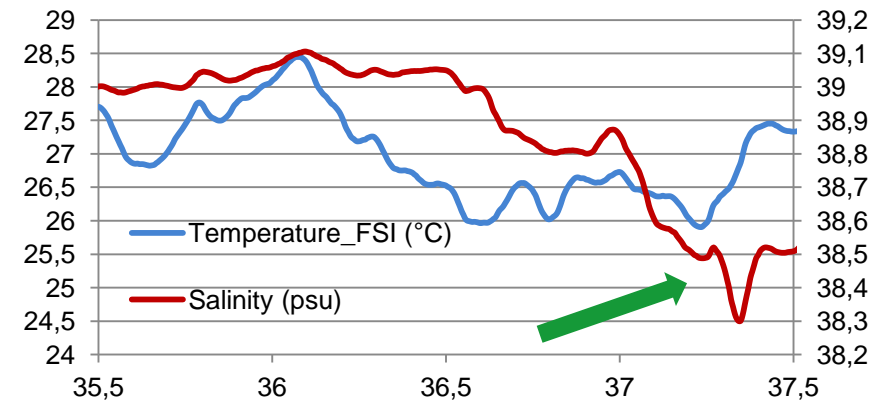
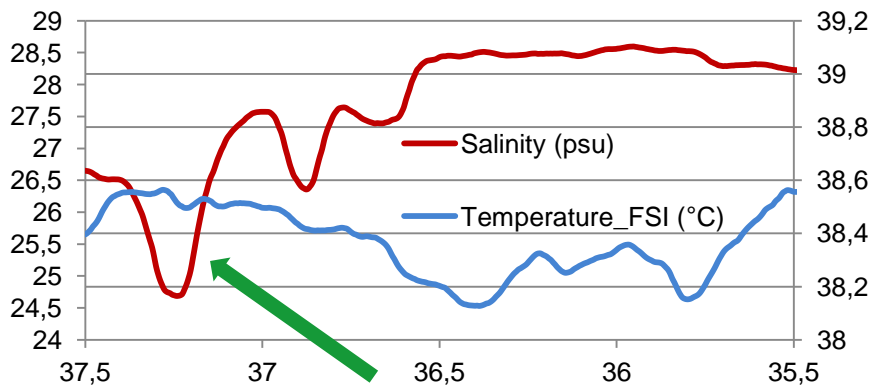
Speaker | Organism | adresse mail



TEMPERATURE - SALINITY



DEPTH (m) : 5
TIME : 15-AUG-2012 00:00
DATA SET: AEGEAN: 3D Hydrodynamical Forecasts (POM)-Nested to MERSEA Med forecast



SEA WATER SALINITY (psu)

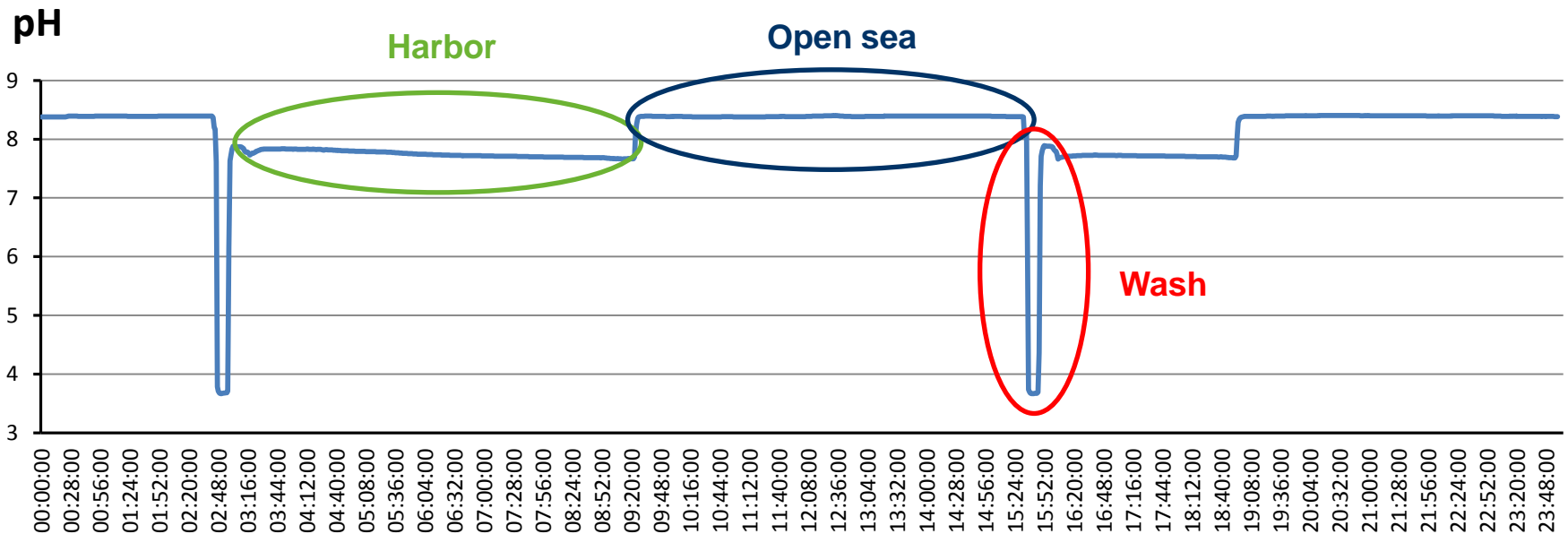
Surface Salinity Minimum: an indicator of Black Sea Water (BSW) flowing in the Aegean Sea.

MAINTENANCE



Acid vs fouling

Wash cycle is performed automatically every morning when the ship reaches the destination harbor. The solution is 8% sulfuric acid pumped to the system for 10 minutes.





MAINTENANCE



Acid vs fouling

Is it enough?

90+ days

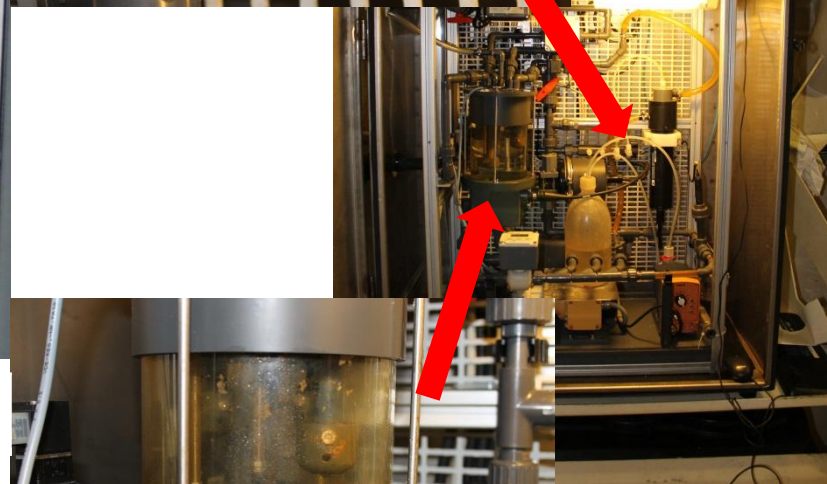


New (0 days)

30 days

60 days

Solution: cover debubbler and pipes with black material to prevent light.

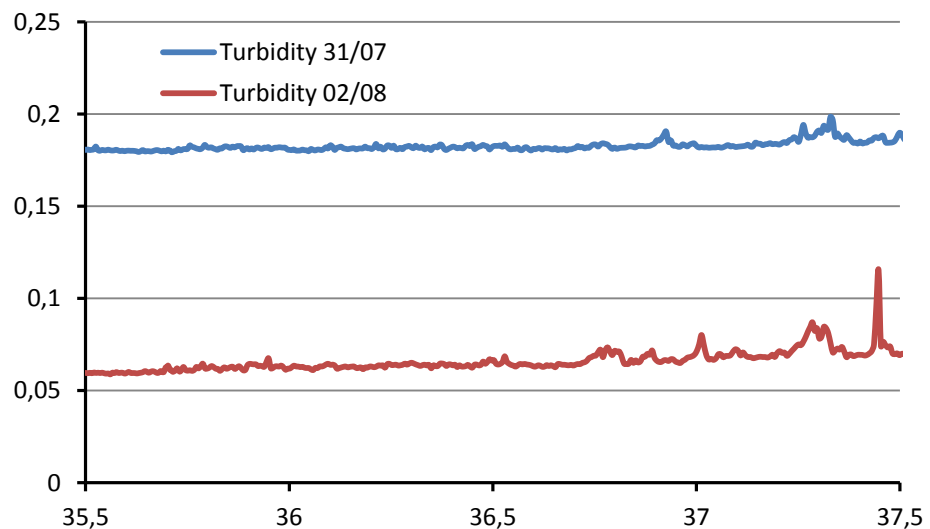
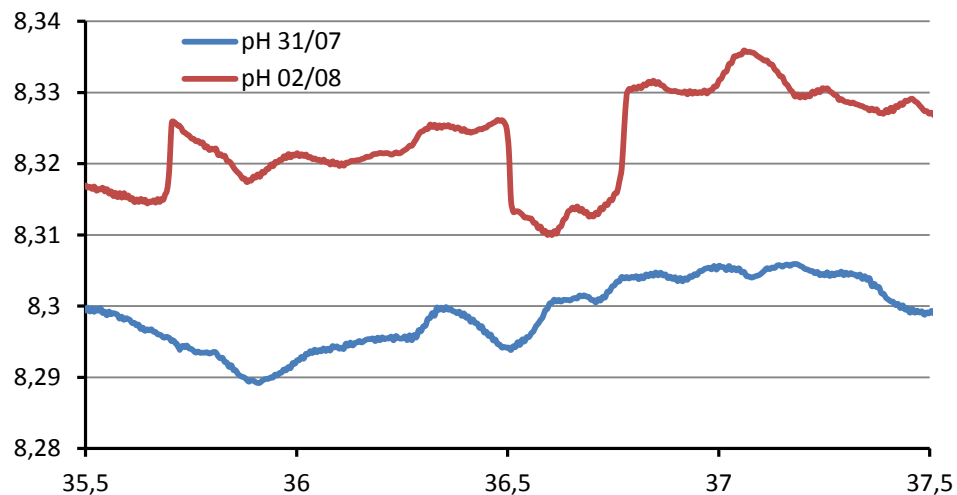
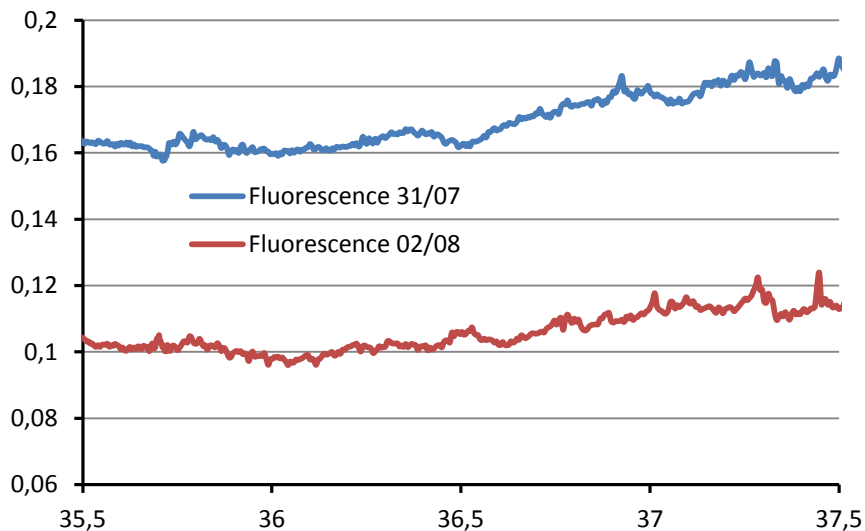


MAINTENANCE



Acid cleaning influence on data

01/08/2012: replace the acid solution with a stronger one.





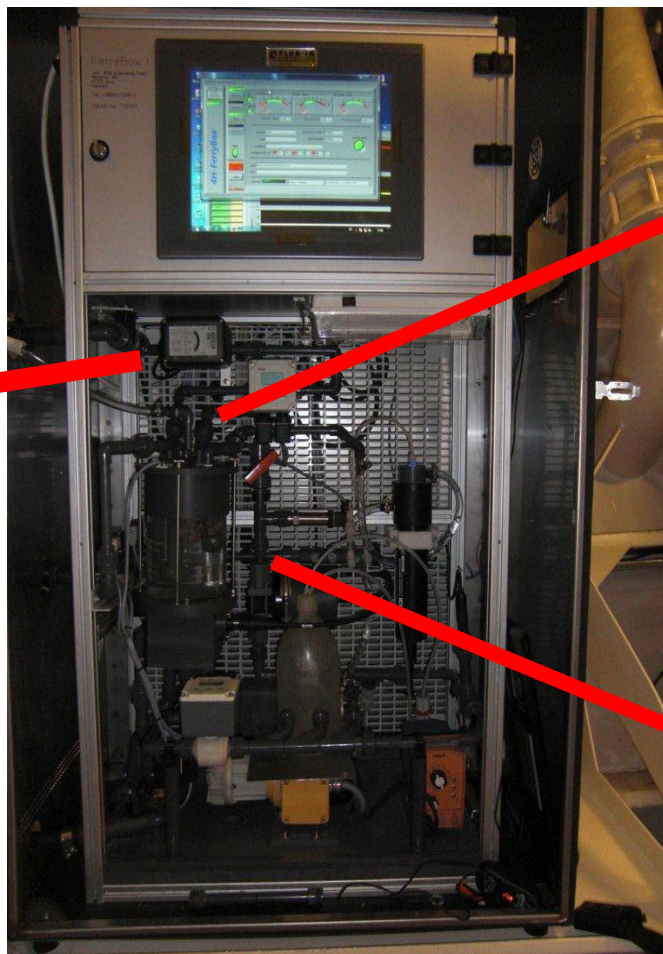
MAINTENANCE



Leakages



Major: needed replacement, spare part provided by manufacturer.



Minor: fixed with PVC glue

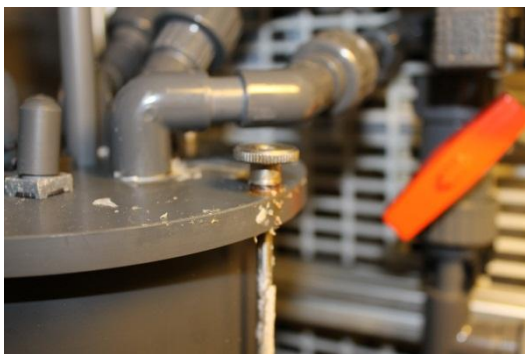




MAINTENANCE



Leakages: deal with ASAP or collect the salt



Solution: Frequently visits to the ship.



Thank you for the attention