

# RV BELGICA ACTIVITY 2011

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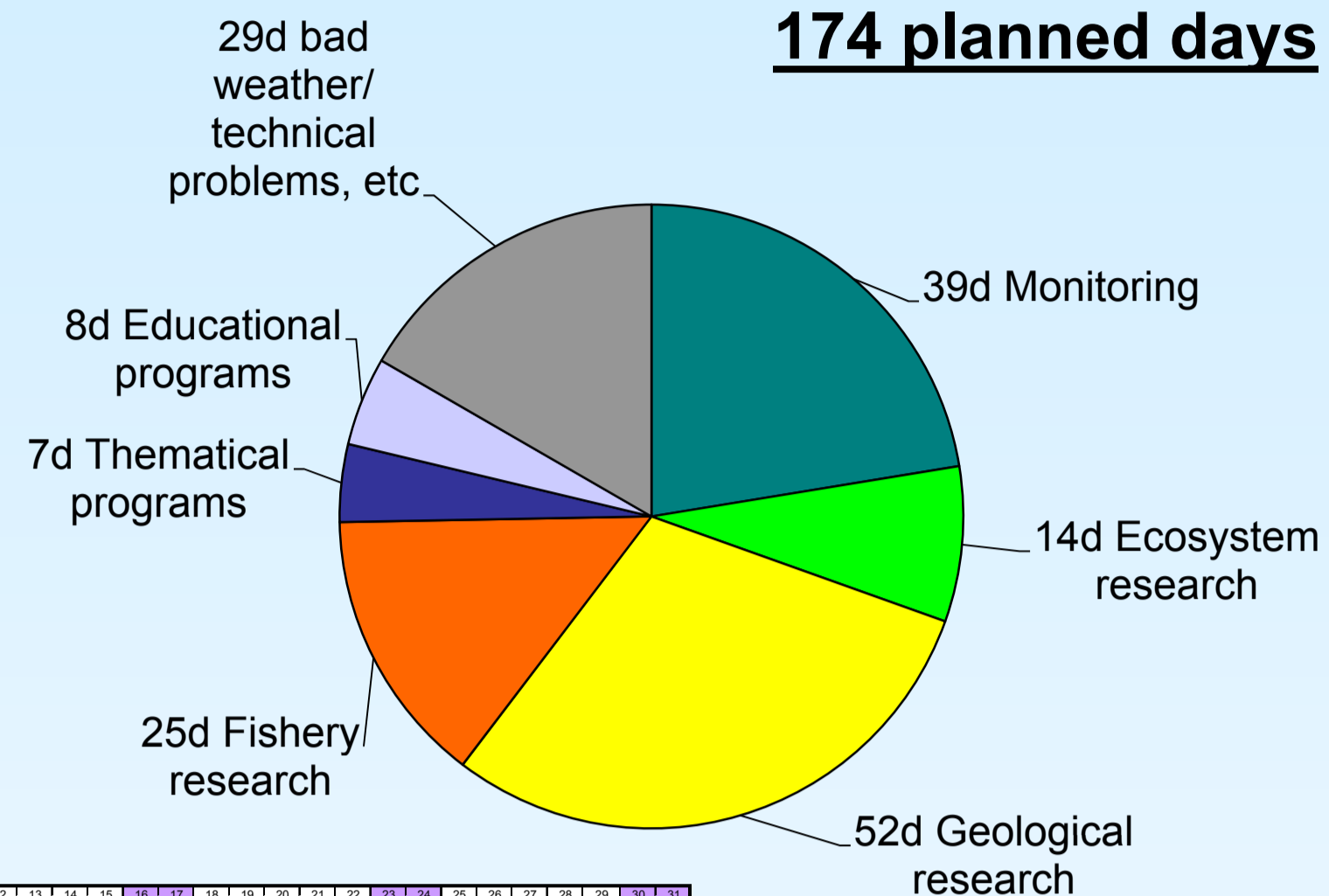
MUMM | BMM | UGMM  
Management Unit North Sea Mathematical Models

**museum** Royal Belgian Institute of Natural Sciences

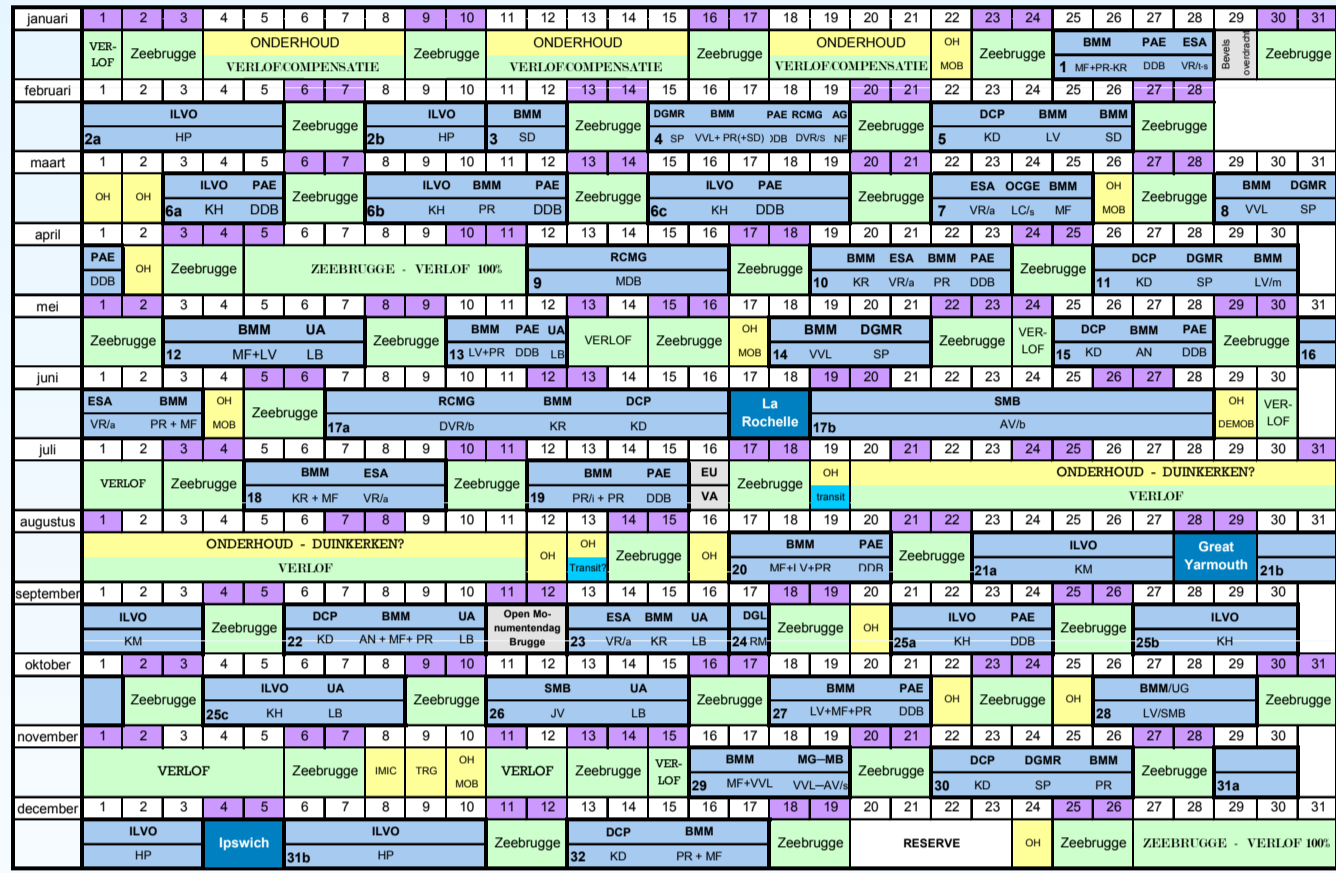
**belspo** Belgian Science Policy Office

## 1. General

**RV Belgica 2011: evaluation**  
**174 planned days**



Program 2011



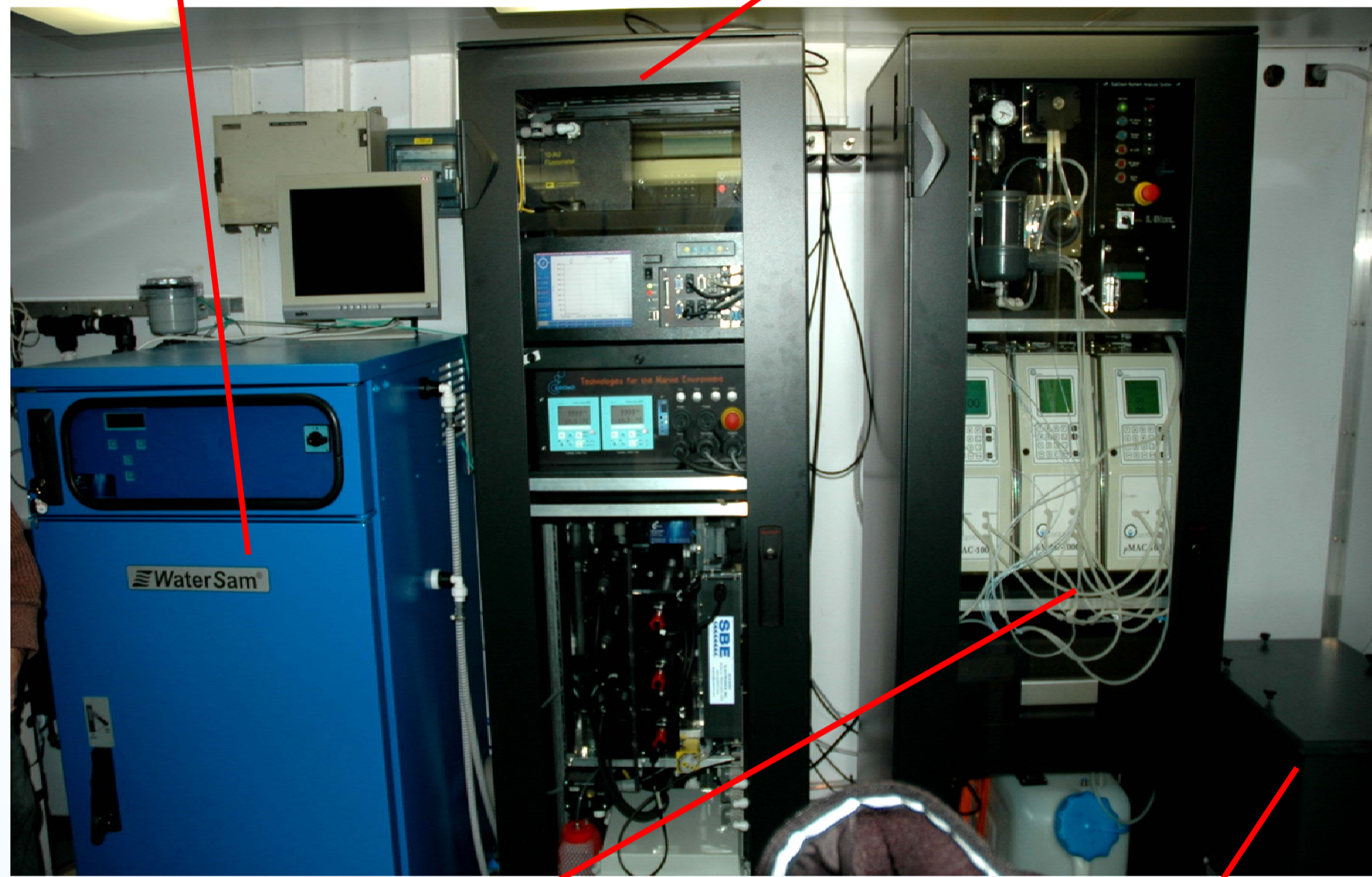
length: 50.9 m beam: 10.0 m draught: 4.6 m  
operated since 1984

## 2. Special instrumentation: AUMS - Autonomous Underway measurement system

Automatic position-controlled water sampler

Ocean Pack data acquisition system &

Physical, biological and chemical properties  
Temperature, conductivity, salinity, dissolved oxygen, pH, turbidity, chlorophyll, algae classes, fluorescence, dissolved organic matter, pCO<sub>2</sub>



Waste water and sediment tank

Nutrient analyzers (Systea):  
nitrate, nitric oxide, ammonia, phosphate, silica

### Some special features of the AUMS:

- Anti-flooding system with leak detection and alarm unit;

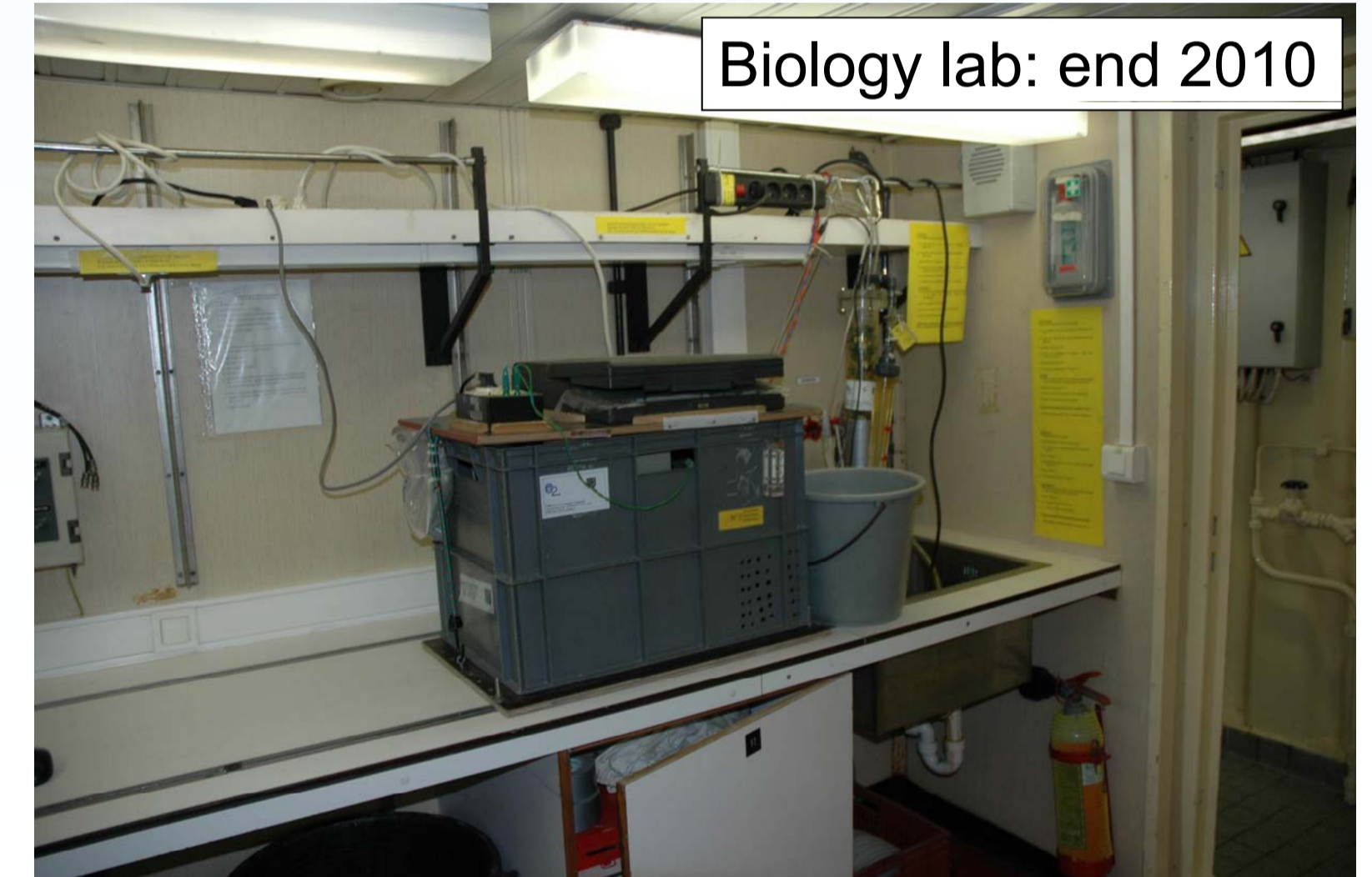


- Programmable periodic cleaning cycle;
- Auto-shutdown system including full cleaning cycle (harbor approach);
- Position-controlled seawater sampling (16\*11 bottles);



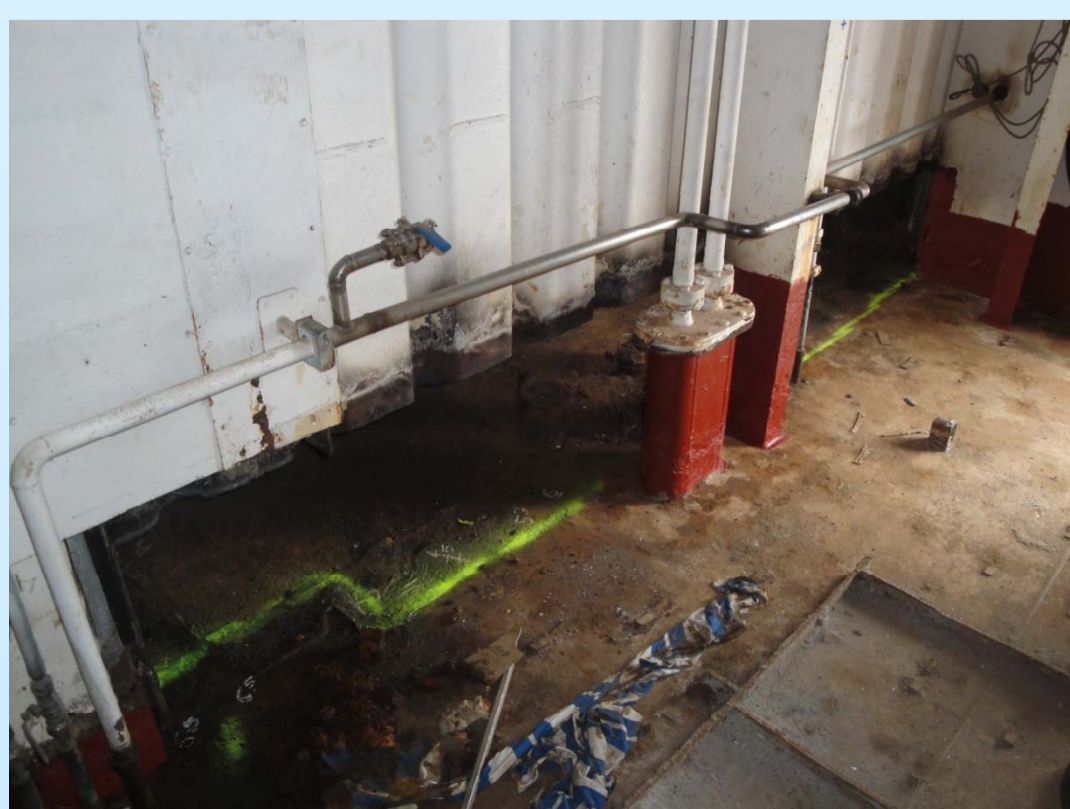
- All AUMS data is online available via ODASIII (Oceanographic Data Acquisition System) and the MUMM website

Biology lab: end 2010



Parameter	Trade	Model	Range	Time interval
Turbidity	Endress + Hauser	2 * CUS 41	0 – 2000 FTU	1 s
	Campbell	OBS3+	0 – 10000 FTU	1 s
Turbidity	Campbell	OBS3+	0 – 4000 FTU	1 s
Oxygen	Aanderaa	3835 optode	0 – 30 mg/l	2 s
pH	Meinsberg	AGA 140	0 – 12 pH	1 s
Chlorophyll	Trios	MicroFlu-chl	0 – 100 µg/l	1 s
Blue Algae	Trios	MicroFlu-blue	0 – 100 µg/l	1 s
CDOM	Trios	MicroFlu-CDOM	0 – 200 µg/l	1 s
Salinity	Sea-Bird	SBE45	0 – 40 PSU	1 s
pCO <sub>2</sub>	SubCtech	MK2	0 – 20000 µAtm	1 s
Fluorescence	Turner Designs	10AU	0 – 500	1 s
PAR	Li-Cor	LI-190	0 – 2000 Watt/m <sup>2</sup>	1 s
Hyperspectral irradiance	Trios	ACC-VIS	320 – 950 nm	8 s
NO <sub>3</sub> , NH <sub>3</sub> , PO <sub>4</sub> , SiO <sub>2</sub> , NO <sub>2</sub>	Systea	3 * MicroMac1000	0 – 500 ppb 0 – 8000 ppb 0 – 150 ppb	20 min. *

## 3. Ship: maintenance



## 4. Future challenge



RV Belgica II

<http://www.mumm.ac.be/>

### PROBLEMS:

- A lot of hidden corrosion associated with seawater leakage at the aft deck, starboard deck, fish lab and wet lab
- Large parts of the decks (plating and cover) and inner walls needed to be replaced

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