

# RBINS-OD Nature: OS RV Belgica

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## Structure



FPS Science Policy  
(Belspo)



FSI Royal Belgian Institute of Natural Sciences  
(RBINS)



Brussels (40 + 40 pers.)

Ostend (23 pers.)



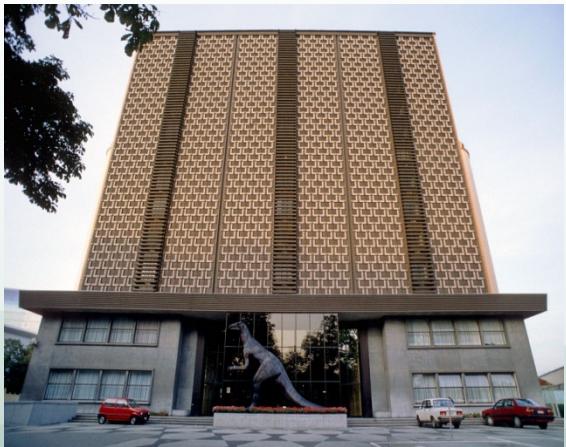
## RBINS

- Directorate Support Services
- Directorate Public Services
- Directorate Taxonomy and Phylogeny
- **DIRECTORATE NATURAL ENVIRONMENT**
- Directorate Earth and History of Life
- Scientific Heritage Service



## RBINS-OD Nature

- About 100 people
- Performs scientific research, **provides services** and policy support
- Active worldwide in terrestrial, freshwater and **marine environment**
- Spread over 3 locations (offices & labs)



Brussels



Woluwe



Ostend

## Expertise

- Ecology
- Molecular biology
- Nature conservation and protection
- Biodiversity
- Chemistry
- Modeling
- Remote sensing
- Operational oceanography
- Marine management
- Coastguard partner (Aerial Surveillance)
- Belgian Marine Data Center
- **Instrumentation and measurements at sea**
- **Management of ship operations & instrumentation**



## 7 research groups

- ATECO: Aquatic & Terrestrial Ecology
- BEDIC: Biodiversity & Ecosystems Data & Information Centre
- BIOPOLS: Belgian Biodiversity Policy Support Group
- ECOCHEM: Ecosystems Physico-Chemistry
- ECODAM: Ecological Ecosystems Data processing & Modelling
- MUMM: Management Unit Mathematical Model North Sea
- **MSO – RV BELGICA: Measurement Service Ostend**



## RV Belgica



## AUMS

### Ocean Pack data acquisition system

Automatic  
position-  
controlled water  
sampler

Physical, biological and chemical properties  
Temperature, conductivity, salinity, dissolved oxygen, pH,  
turbidity, chlorophyll, algae classes,  
fluorescence, dissolved organic matter, pCO2

AUMS:  
Autonomous Underway  
measurement system



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

Waste water and sediment tank

## AUMS

- Variables being measured (RV Belgica - AUMS)

Parameter	Trade	Model	Range	Time interval	ICOS relevancy
Turbidity	Endress + Hauser	2 * CUS 41	0 – 2000 FTU 0 – 10000 FTU	1 s 1 s	
Turbidity	Campbell	OBS3+	0 – 4000 FTU	1 s	
Oxygen	Aanderaa	3835 optode	0 – 30 mg/l	2 s	
pH	<b>Meinsberg</b>	<b>AGA 140</b>	<b>0 – 12 pH</b>	<b>1 s</b>	<b>Desirable</b>
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	<b>Sea-Bird</b>	<b>SBE45</b>	<b>0 – 40 PSU</b>	<b>1 s</b>	<b>Core</b>
pCO2	<b>SubCtech</b>	<b>MK2</b>	<b>0 – 20000 µAtm</b>	<b>1 s</b>	<b>Core</b>
Fluorescence	<b>Turner Designs</b>	<b>10AU</b>	<b>0 - 500</b>	<b>1 s</b>	<b>Additional</b>
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>	<b>Systea</b>	<b>3 * MicroMac1000</b>	<b>0 – 500 ppb 0 – 8000 ppb 0 – 150 ppb</b>	<b>20 min. *</b>	<b>Core</b>

## Achievements, problems & outlook

### Achievements

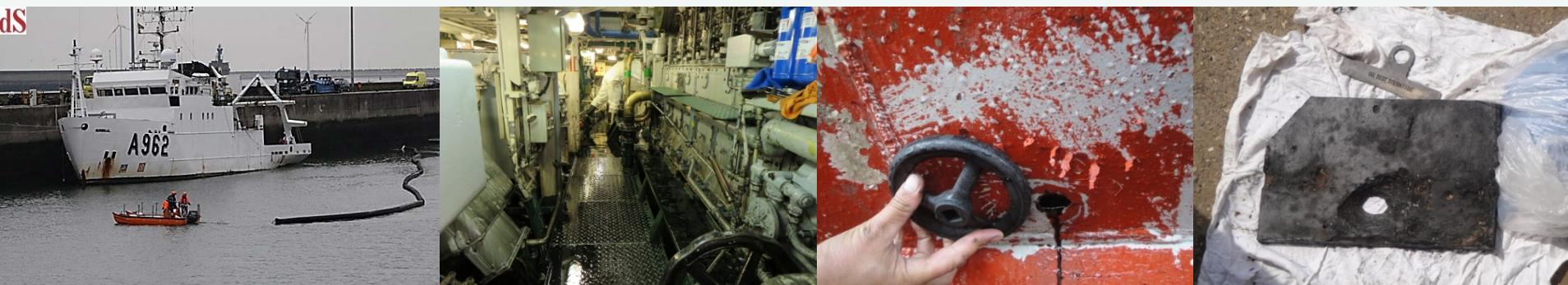
- Near real-time online data availability (with a delay of a couple of minutes)
- A semi-automated QC system is in place
- A local fresh water circulation system has been installed

### Problems

- 2015: 5 months of ship time lost (incl. data collection) due to flooding of engine room (19.07.15)
- 2016: 5 months of ship time lost due to extra maintenance (cfr. the ageing of the vessel)

### Outlook

- Fulfill the ICOS labeling process
- Possible setup of a OTC-Belgium with VLIZ (OS RV Simon Stevin – OS VLIZ buoy)
- Enhance data quality by (inter)calibration exercises



Thank you!

## Replacement RV Belgica



Visit the RV Belgica website: [odnature.naturalsciences.be/belgica](http://odnature.naturalsciences.be/belgica)