

11th ERVO Meeting Copenhagen 14 – 15th May 2009

Belgium Federal Science Office

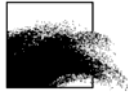
R/V BELGICA Update 2008

Royal Belgian Institute Of Natural Sciences – "RBINS"

Management Unit of the North Sea Mathematical Models – "MUMM".

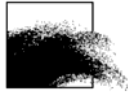
www.mumm.ac.be

a.pollentier@mumm.ac.be



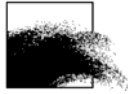
RV BELGICA

Built:	1984
Length:	51 m
Beam:	10 m
Draft:	4.8 m
Days at sea:	180/y
Operating cost:	1.850 M€y



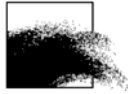
Belgica

- National RV
- Managed by MUMM a department of the Royal Belgian Institute of Natural Sciences – Federal Science Policy Office
- Operated by Navy on behave/ expense of MUMM
- Mainly Southern Bight North Sea & regional area beyond
- Annual programme \pm 190 days at sea/year
- Generally cruises of 1 week, a few 3 up to 6 weeks.



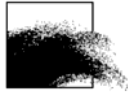
Regional multipurpose research vessel: 15 Navy crew & 16 scientists.





Beam trawl fishing

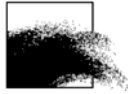


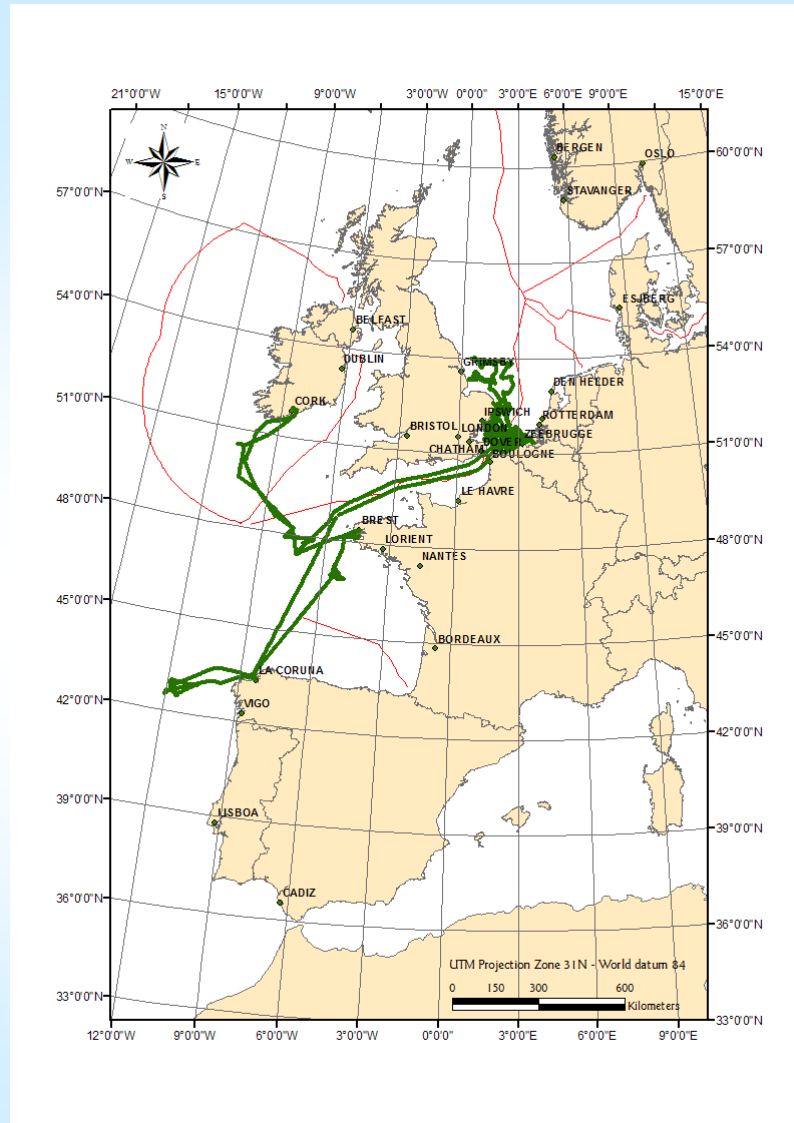
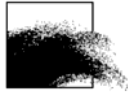


Sediment transport

Tripode: LISST, ADCP's,

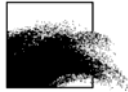






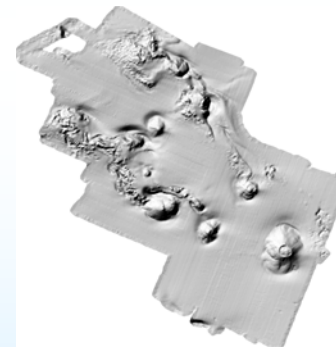
Belgica trajectories 2008

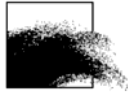
Mainly Southern bight of the
North Sea



2008 cruises overview : only one crew (limiting # days at sea)

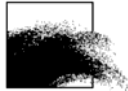
- 8 (46 days) Environmental monitoring BCS
- 3 (26 days) Belgian RP “sustainable development”
- 9 (47 days) Geophysical EC-FP6 Hermes (Hot spot ecosystems Gulf of Biscay, Galicia bank, ..) & Sed. movements (sand & gravel extraction)
- 4 (29 days) Fisheries research ICES-WG & Belgian NDGP
- 5 (26 days) Thematic programs eg optical remote sensing products, scientific diving, students, ...





Belgica programme 2009

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
januari	Zee+brugge	VER-LOF	Zeebrugge	ONDERHOUD VERLOF / COMPENSATIE						Zeebrugge	ONDERHOUD VERLOF / COMPENSATIE						Zeebrugge	OH	RCMG/DGMR 1 MB/YD			Zeebrugge	ESA + BMM + LPAE 2 VR/t/s + LV/p-PR-SS/o + DDB						Zee+brugge		
februari	Zee+brugge	ILVO				Zeebrugge	RCMG + BMM + RCMG DGMR				Zeebrugge	BMM + LPAE				Zeebrugge	OH	ILVO + WIV + DCP + BMM 6a KH + JV + KD + SS/g				Zee+brugge									
maart	Zee+brugge	ILVO + BMM				Zeebrugge	DCP + ILVO + BMM				Zeebrugge	ESA + BMM + OCGE				Zeebrugge	BMM + LPAE				Zeebrugge	OH	10								
april	Zee+brugge	ILVO + BMM				Zeebrugge	DCP + ILVO + BMM				Zeebrugge	ESA + BMM + OCGE				Zeebrugge	BMM + LPAE				Zeebrugge	OH	10								
mei	Zee+brugge	ILVO + BMM				Zeebrugge	DCP + ILVO + BMM				Zeebrugge	ESA + BMM + OCGE				Zeebrugge	BMM + LPAE				Zeebrugge	OH	10								
mei	VER-LOF	Zeebrugge	OH+MOB	RCMG 14a DVR/Gen1						CADIZ	RCMG 14b LDM/Gen2						VIGO	14c													
juni	MARBIO + BMM + ULG/BMM				COMPENSATIE				Zeebrugge	OH	BMM + ESA				Zeebrugge	BMM + DCP + LPAE + WIV				Zeebrugge	RCMG+URAP										
juli	RCMG DGMR	DMM	Zeebrugge	BMM				OH	Vlootdagen	BMM + LPAE				OH	ONDERHOUD - DUINKERKEN																
augustus	ONDERHOUD - DUINKERKEN										OH	Transit	Zeebrugge	OH	BMM + DCP + LPAE				Zeebrugge	ILVO				CHATHAM	22b						
september	ILVO				Zeebrugge	BMM + DCP				OH	Zeebrugge	OH	BMM + LPAE				Zeebrugge	ILVO + BMM				Zeebrugge	ILVO +								
oktober	WIV				Zeebrugge	DCP+ILVO+BMM+LPAE				OH	Zeebrugge	IMIC	MARBIO + IMIC				Zeebrugge	BMM + DCP				Zeebrugge	DMM + DGL + DCP				Zee+brugge				
november	Zee+brugge	VER-LOF	RCMG + BMM + RCMG DGMR				Zeebrugge	VERLOF						Zeebrugge	RCMG + BMM + RCMG DGMR				OH	Zeebrugge	OH	ILVO				LOWE-STOFT	32b				
december	ILVO				Zeebrugge	BMM + DCP + WIV				Zeebrugge	RESERVE				Zeebrugge	VERLOF															

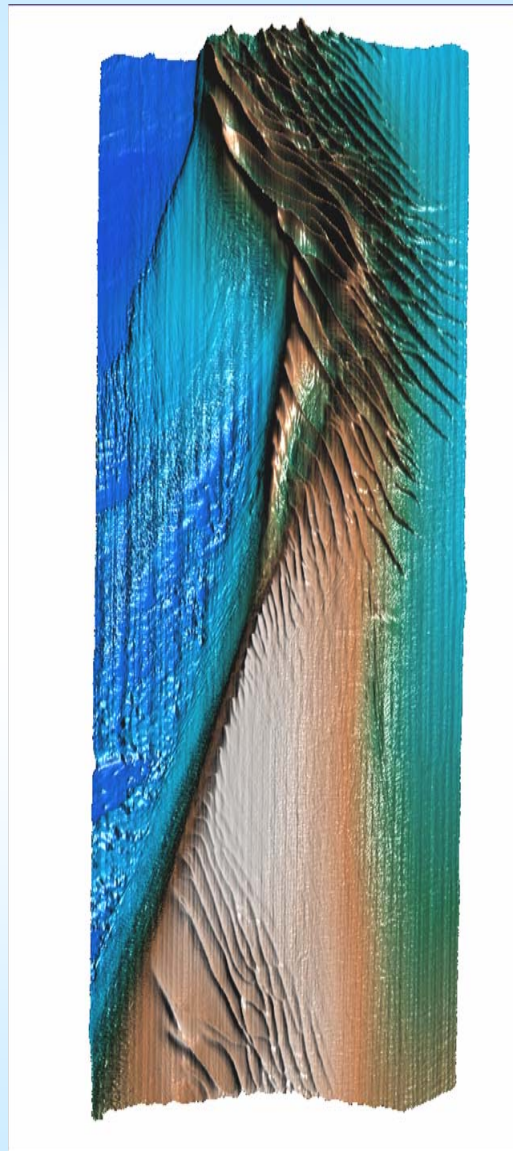
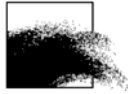


Kongsberg EM1002 multibeam transducer
installed summer 1999 added pitch compensation in
2001 allowing measurements up to 1000 meters

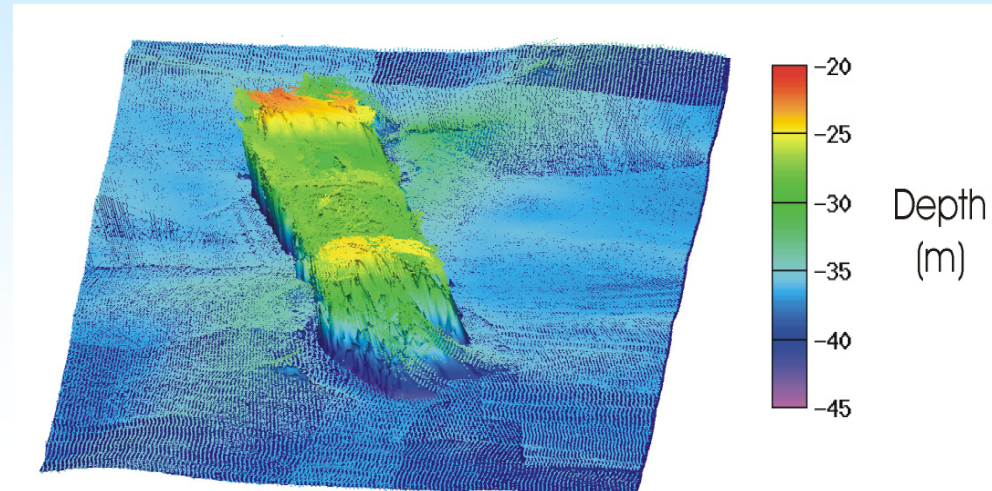


**2nd Kongsberg
multibeam EM 3002D
Summer 2008**

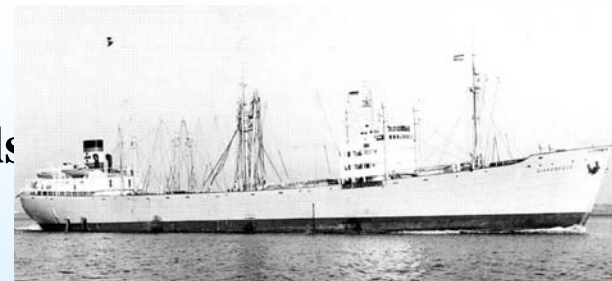




Kongsberg EM 1000 Multibeam bathymetry



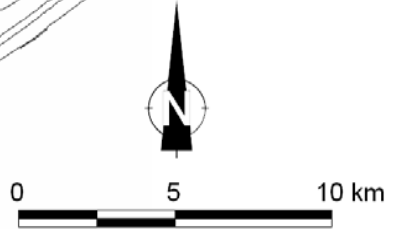
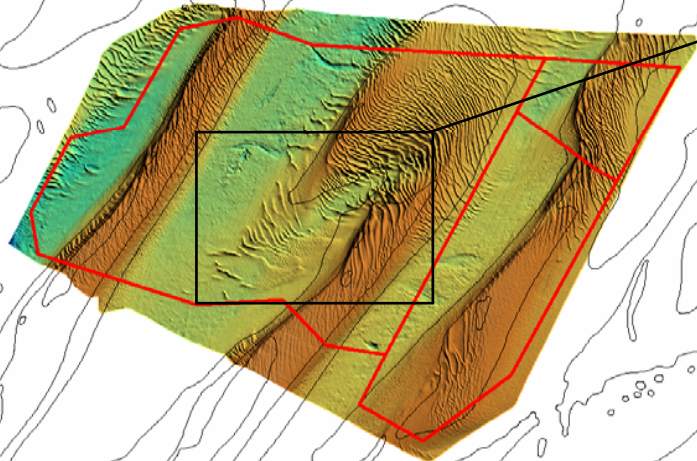
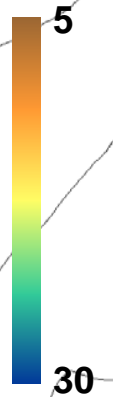
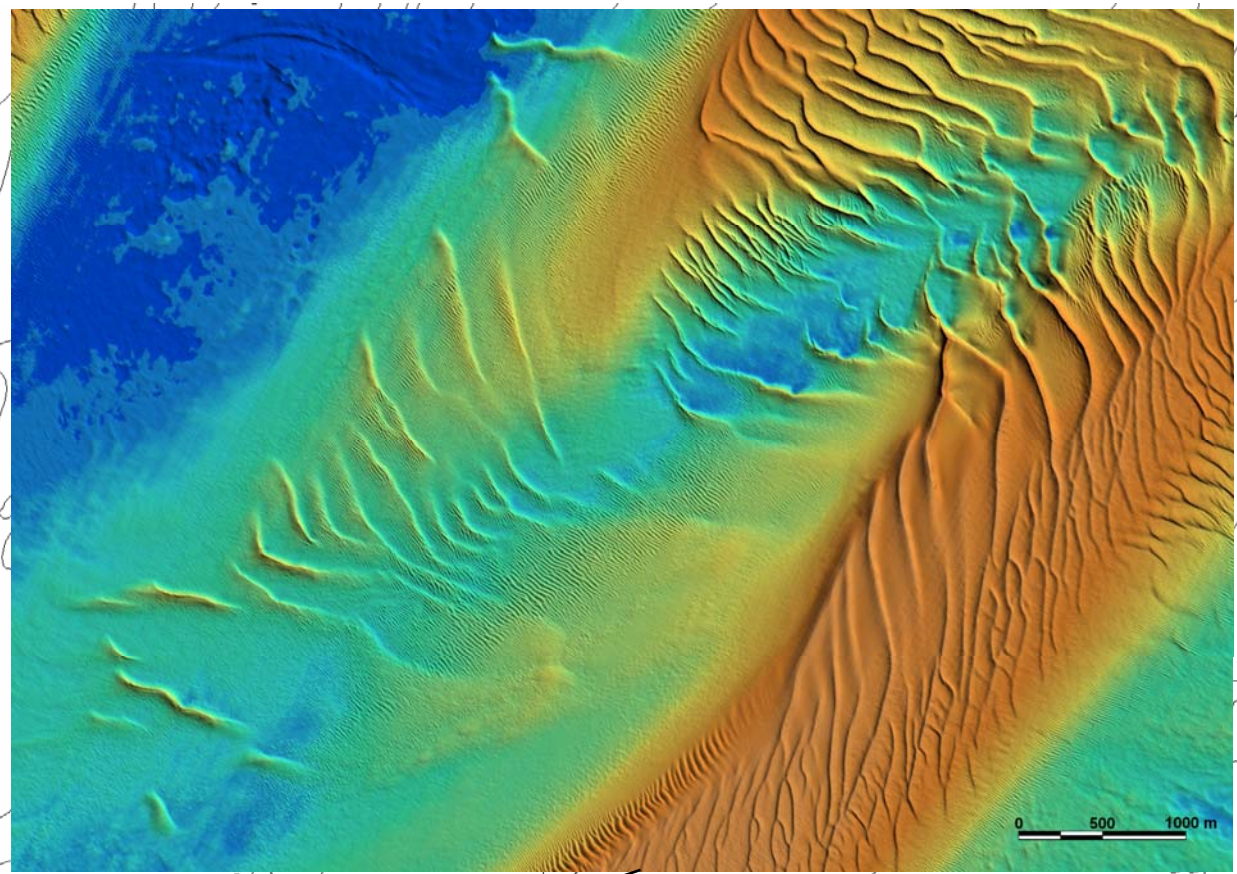
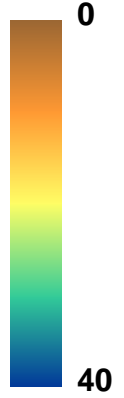
Scientific diving
at the Birkenfels

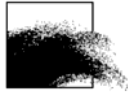


Zones 1 and 2

Bathymetry and Geomorphology

Depth
(m, MLLWS)

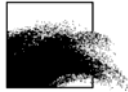




Belgica drydock 2008

1. New Kongsberg EM3002D shallow water multibeam system



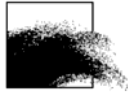


Belgica drydock 2008

2. New Kongsberg EA 400 Echosounder with additional 38 kHz 7° Transducer



PS Blister I:	100 kHz	transducer: navigation echosounder
	38 kHz 7°	transducer: scientific echosounder
SB Blister II:	33 kHz	transducer: scientific (former ATLAS)
	210 kHz	transducer: scientific (former ATLAS)



Belgica 25 years old

2008

Inquiry among the Belgian scientific community

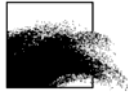
Science missions next decade(s)

Working groups: (Bio-)Chemical, biological, geophysics, fisheries,

Feb. – Oct. 2009

Feasibility study (1st approach).

Major refit of the existing Belgica or newbuild taking into account the outcome of the science missions inquiry (Strategy and cost estimate)



Casco Insurance BELGICA renewed on a yearly basis

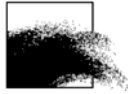
Incidents come in series of 3 (or 4) every 6 years

- Year 2006 – 2007 : still 2 of 4 claims running

- 1. Illegal Gillnet incident, Bantry Bay Irish Waters**
- 2. Subsequent harmful vibration – one blade badly repaired.**

- 3. PS Main Generator Incident**

- 4. Shore supply incident during maintenance period at ships repair yard (claim versus ship yard as well)**

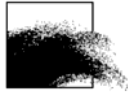


Casco Insurance

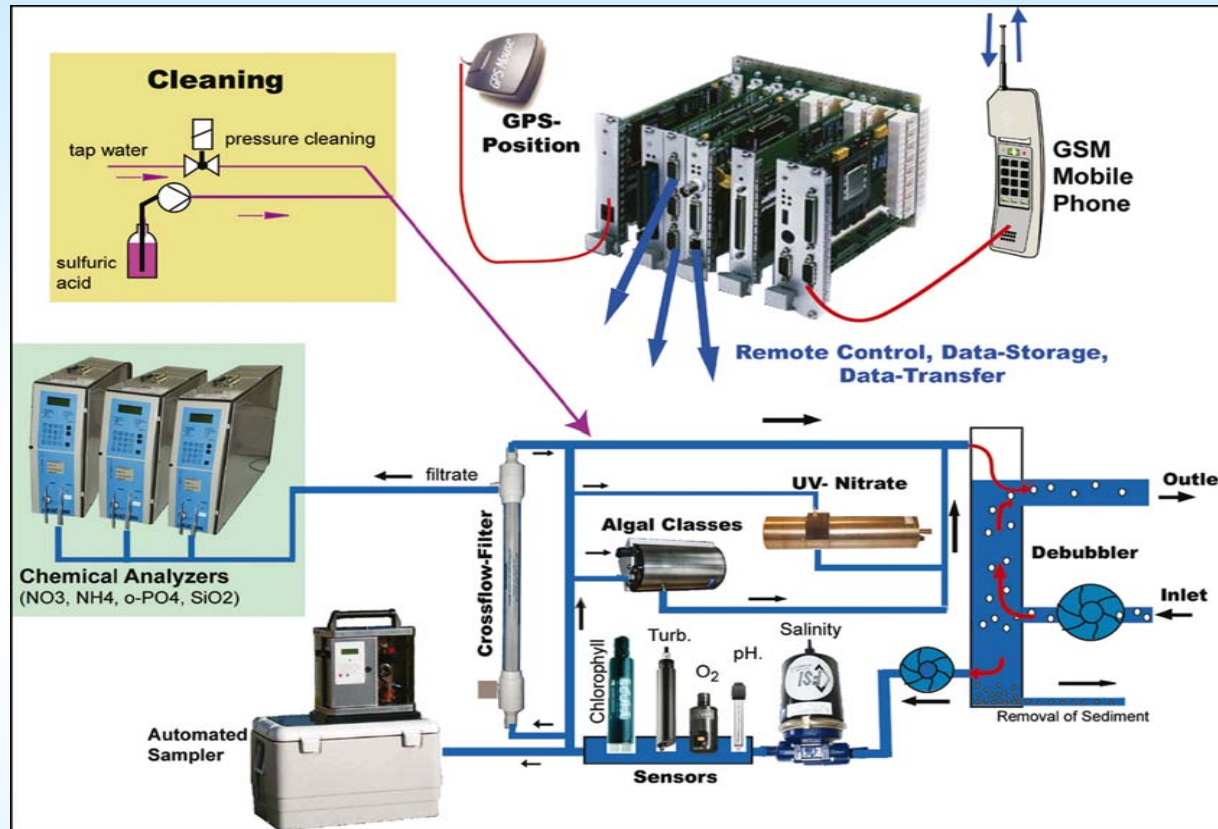
1. Illegal Gillnet incident : estimated at 250 000 euro



2nd drydock
needed due to
harmfull vibrations
after repair of
propeller blades



FerryBox 'underway' measurement system

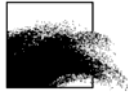


Measured parameters:

- temperature
- salinity
- chlorophyll a
- pH
- nutrients
- pCO₂
- downwelling radiation
- PAR

Main Features:

- running autonomously
- controlled by GPS position
- self cleaning (after each cruise)
- **automatic water sampler for further lab analysis**

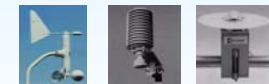


Data acquisition with the R/V BELGICA

Navigation



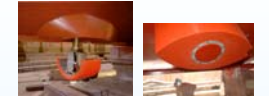
Meteorology



Oceanography



Multibeam



FerryBox sensors



ODASIII

- The oceanographic data acquisition system ODASIII collects, processes, stores navigational, oceanographic, meteorological and hydrographical data.
- The data can be displayed in real-time or off-line at different client stations all over the vessel.

Data collection, processing and distribution
 HP rx2660 UNIX workstation

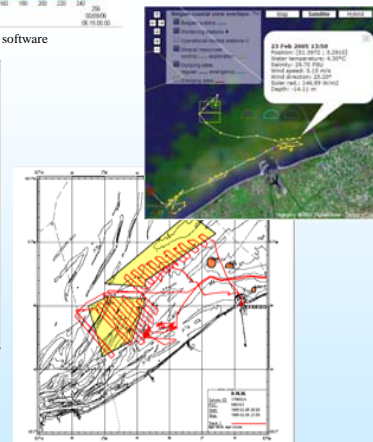
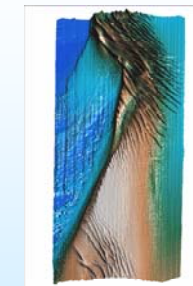
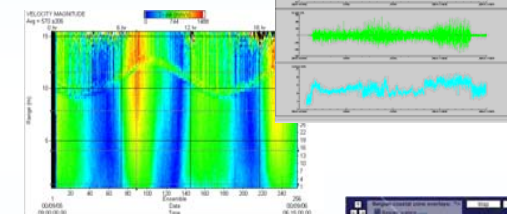
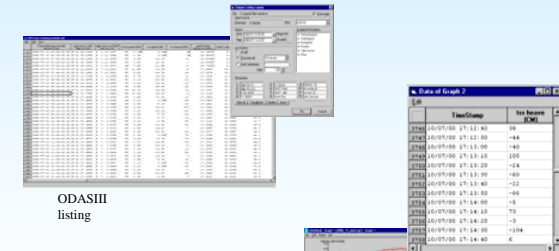
- The R/V BELGICA is equipped with a Kongsberg-Simrad EM1002 and a EM3002D multibeam echo sounder

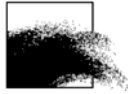
Multibeam data processing and storage workstations

+ FerryBox + watersampler



Presentation





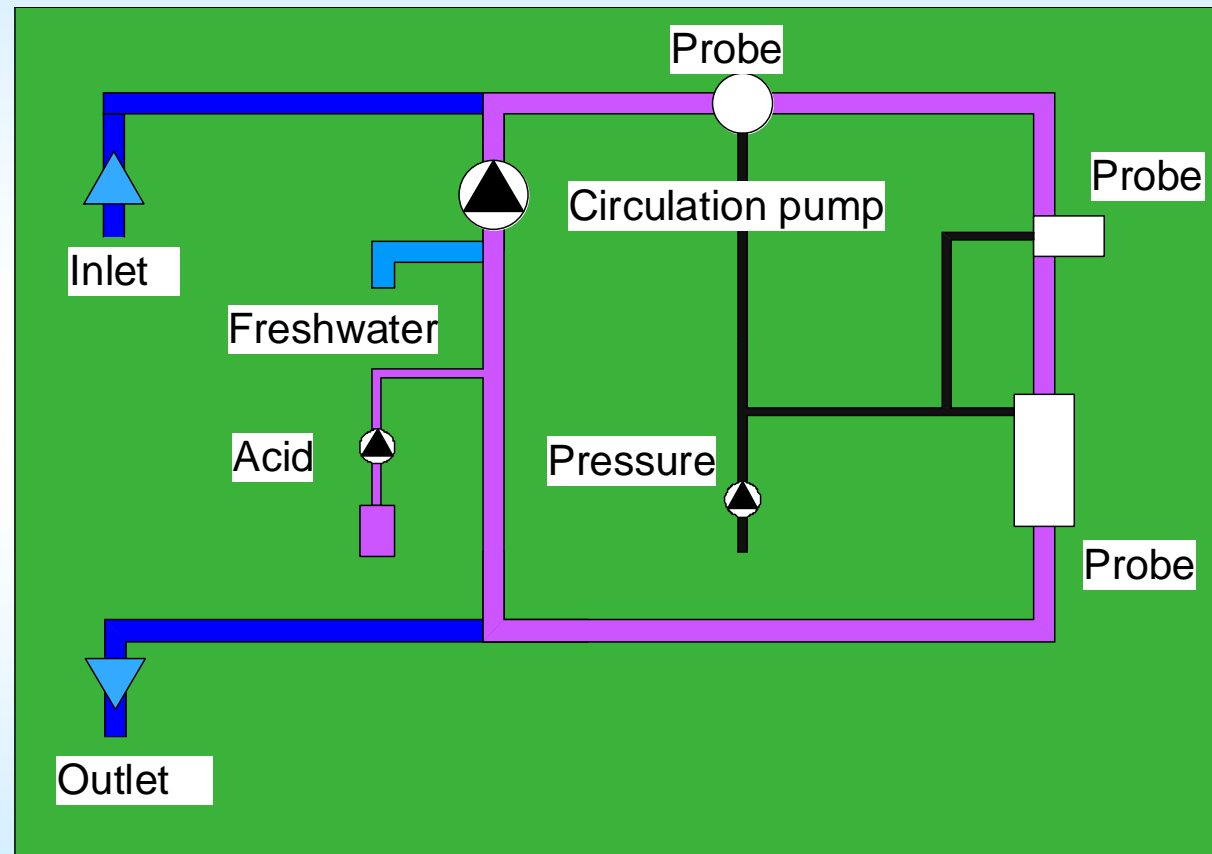
Antifouling concept

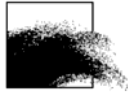
4
1st Meeting

Principle of the
watersystem

Antifouling:

1. Freshwater
2. Acid
3. High pressure
4. Chlor





Belgica: All underway acquired data is transmitted to the shore
(twice/day using Inmarsat Fleet77 or more when in range of GPRS network)

Detailed scientific cruise programs, trajectories and underway
data of key parameters are on MUMM's website
<http://www.mumm.ac.be>

