



Royal Netherlands Institute for Sea Research

OFEG-TECH Barcelona 24 nov 2009

NIOZ recent developments



Marck G Smit
Jack Schilling



Program Pelagia



- Now: port call Barcelona
- Nov/Dec 2009: Mediterranean
- Jan/Feb/Mar 2010: Midlife Refit
- Apr/May 2010: Mid Atlantic
- May/Jun 2010: West Atlantic



RV Pelagia – Mid Life refit

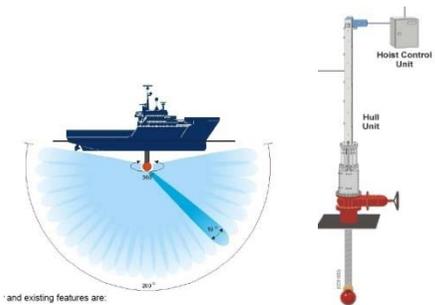
- Build in 1991
- Downscaled budget
- EU-tendered
- Yard: Santander
- jan/feb/mar 2010
- 20 year life time extension





Pelagia – midlife refit (2)

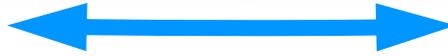
- 2 x new main engines (caterpillar)
- Revision of all systems:
 - Overhaul of electric drive systems, generator and main switch board
 - Ventilation, AC and piping: complete overhaul
 - New navigation systems and radar, ECDIS
- USBL + deployment pole?
- Heavier knuckle boom crane for work deck
- Ballast water treatment system
- Permanent internet connection





New shipboard data management system

WERUM



TECHSAS

- Better technology by programmers
- Black box
- Commercial: turnkey quotation, fast response
- Not very fancy
- From sea researcher practice
- Patch work development
- Noncommittal support, substantial own effort
- Better displays
- Substantial cheaper

Both systems supply a good solution!

TECHSAS display solutions were decisive

Installation: during Refit Pelagia

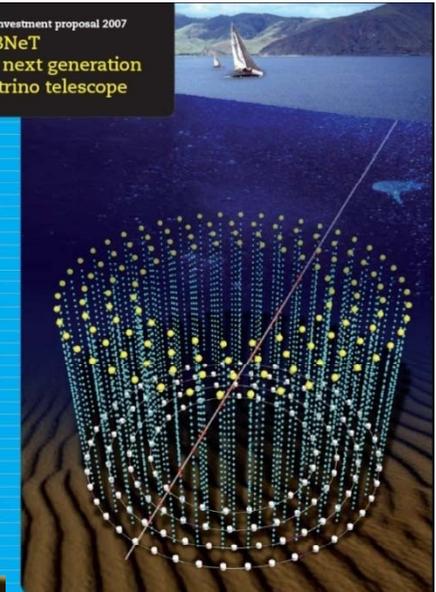


KM3Net – neutrino detector

- Multiple string deployment
- Compacted mooring



NWO investment proposal 2007
KM3NeT
The next generation
neutrino telescope



- Neutrino detector
- 5000 m depth
- 10.000 glass spheres
- Appr 500 moorings
- 10 kV powersupply
- Appr budget € 220 mln



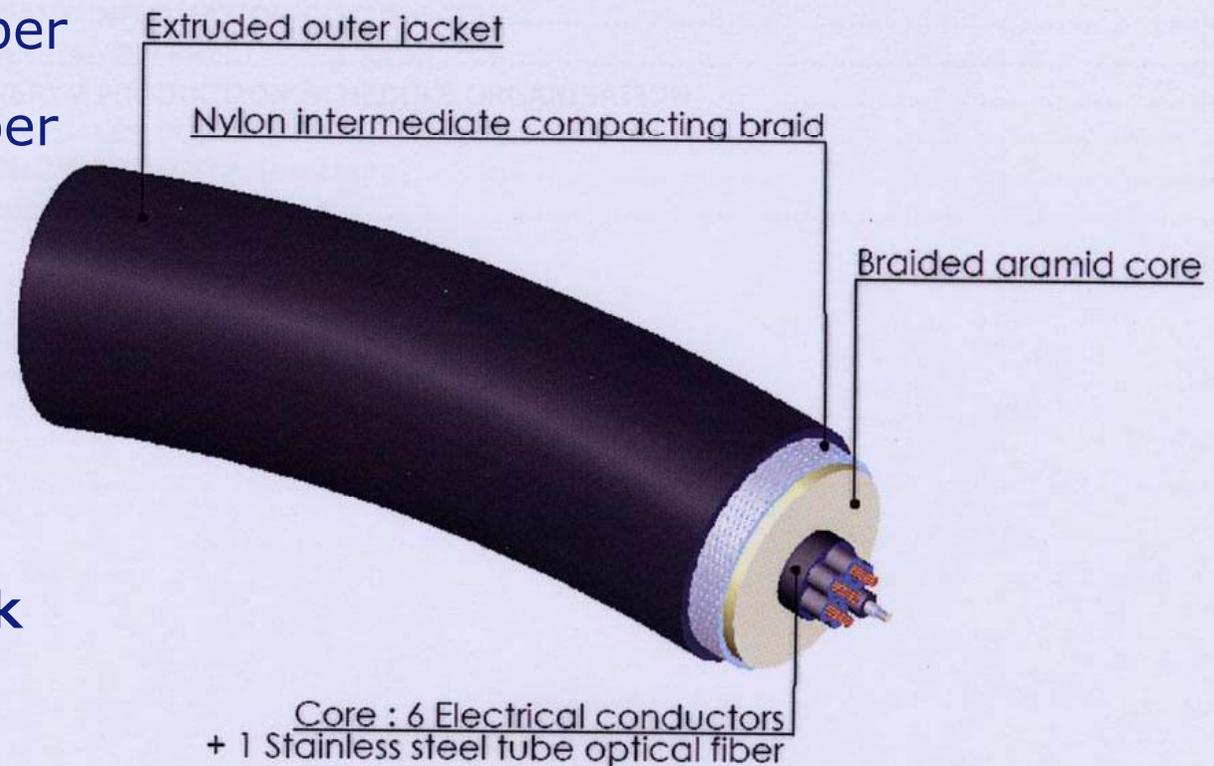
New Kevlar OEM cable



- Ø 20 mm
- 21 ton
- 6 x 0.36 mm² copper
- 4 x single mode fiber
- 9500 m

- See:
presentation Jack

COSA BRAIDED ARAMID CABLE WITH CONDUCTORS CORE AND THE OPTICAL FIBER





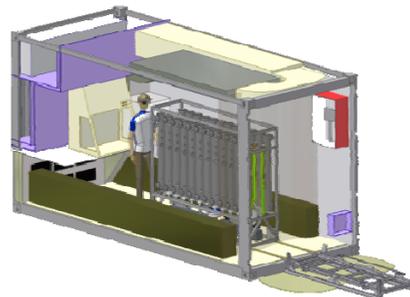
Ultra Clean Sampling system

- Big West Atlantic project
- New CTD bottles
- Ultra clean material: PVDF
- Ultra clean valves: PVDF
- 24 large volume bottles: 24 ltr



- System elements:

Ultra Clean Cable Clean room sub sampling Ultra Clean Bottles





Ultra Clean Sampling system (2)



butterfly valve,
hydraulic actuated,
large opening ratio



shallow and
deep water trials



welding of the
head to the pipe



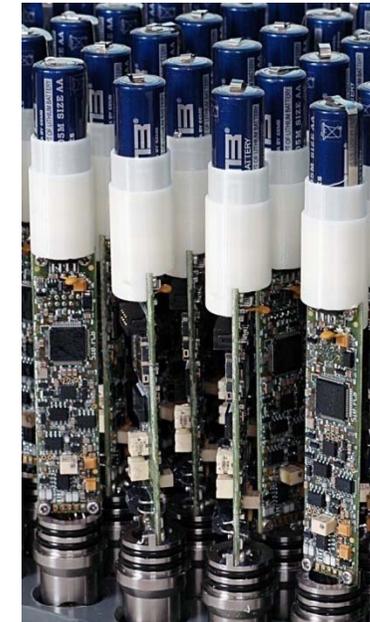
welded head

complete system trial
cruise : April 2010



In development: latest models of NIOZ thermistor string

- High accuracy thermistorstring
 - 1 mK accuracy
 - inductive coupling
- Model 5:
 - Temperature + conductivity
- Model 6:
 - Temperature + pressure differences





NIOZ HD Video and stills camera system



Strobe, HD-camera, LED-light, IR-light

- Fully programmable
- Stand-alone
- Infra-red light is used to decrease the disturbance effect on the fish. Most fish are hardly affected by Infra Red light.



Science/institute (1)

- Wadden sea project:
 - Tidal flats, measuring poles
 - Funding because of oil drilling



- Ballast water project:
 - Invasive species
 - IMO new systems test facility



Chinese Mitten Crabs in Europe

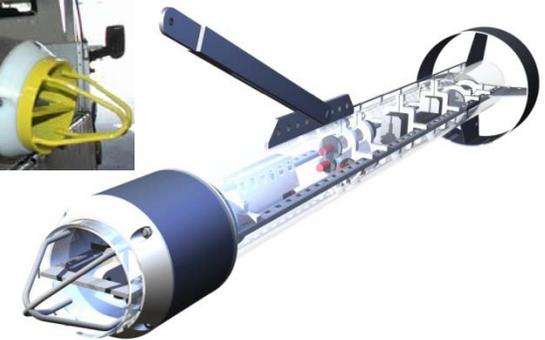




Science/institute (2)



- Beagle project:
 - Darwin year: Beagle round the world voyage again
 - Every week TV-coverage
 - CTD-etc torpedo



- Proposals:
 - Mid water AUV (500/600 m)
 - ROV cooperation with Ghent University (Cherokee, 1600 m)



Plankton nets (question Hans Petter)

- Zoo plankton work is stopped at NIOZ!

- MocNess: no experience

NIOZ-nets:

- HydroBios: Multinet (+ sev. others)

- 0.5 x 0.5 m

- modified to improve towed sampling

- RMT (out of production)

- 1 m² + 8 m²



Contact: Martien Baars



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Thank you

Remarks, questions?