Operations for the ALBATROSS line in the Ligurian Western site EMSO

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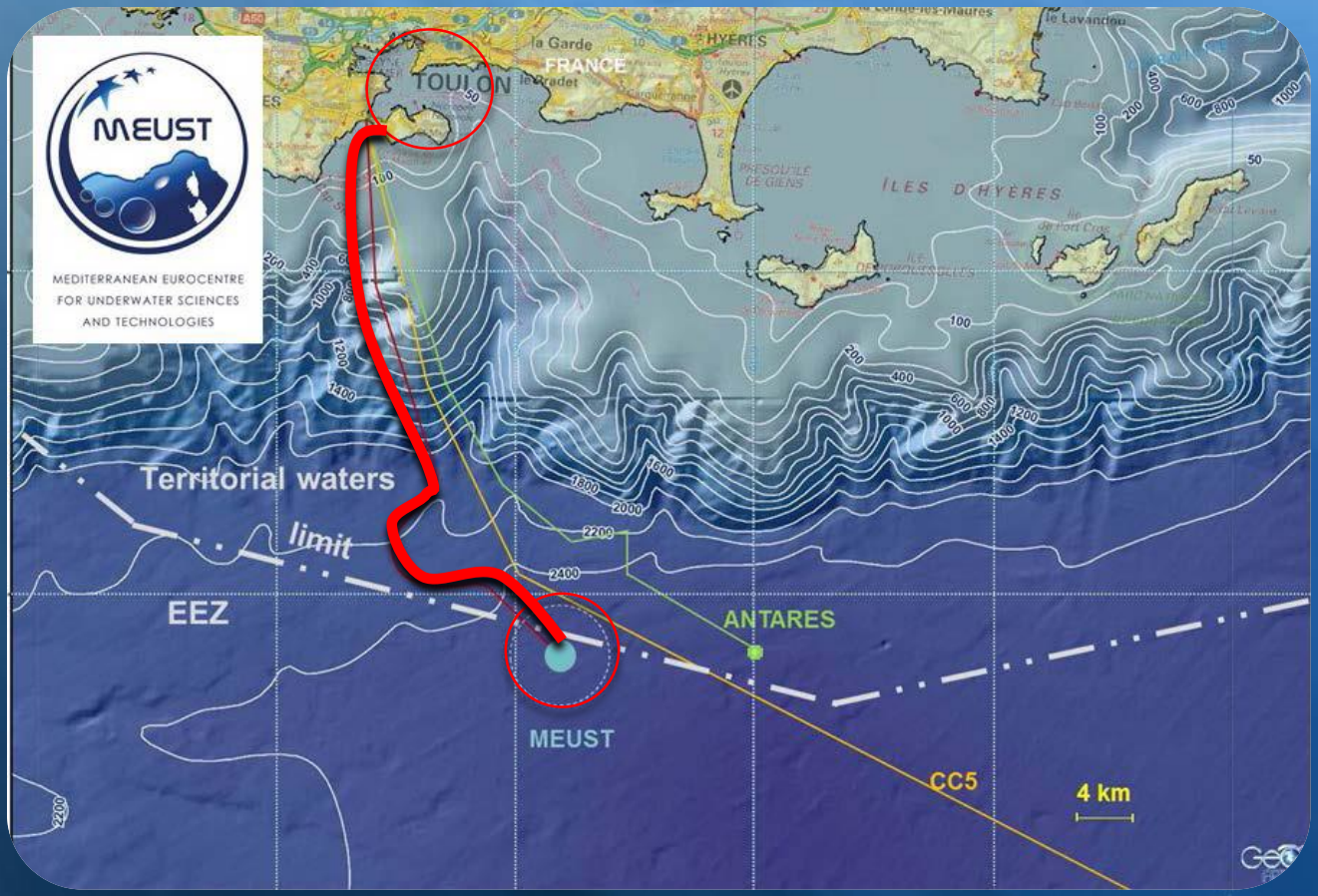
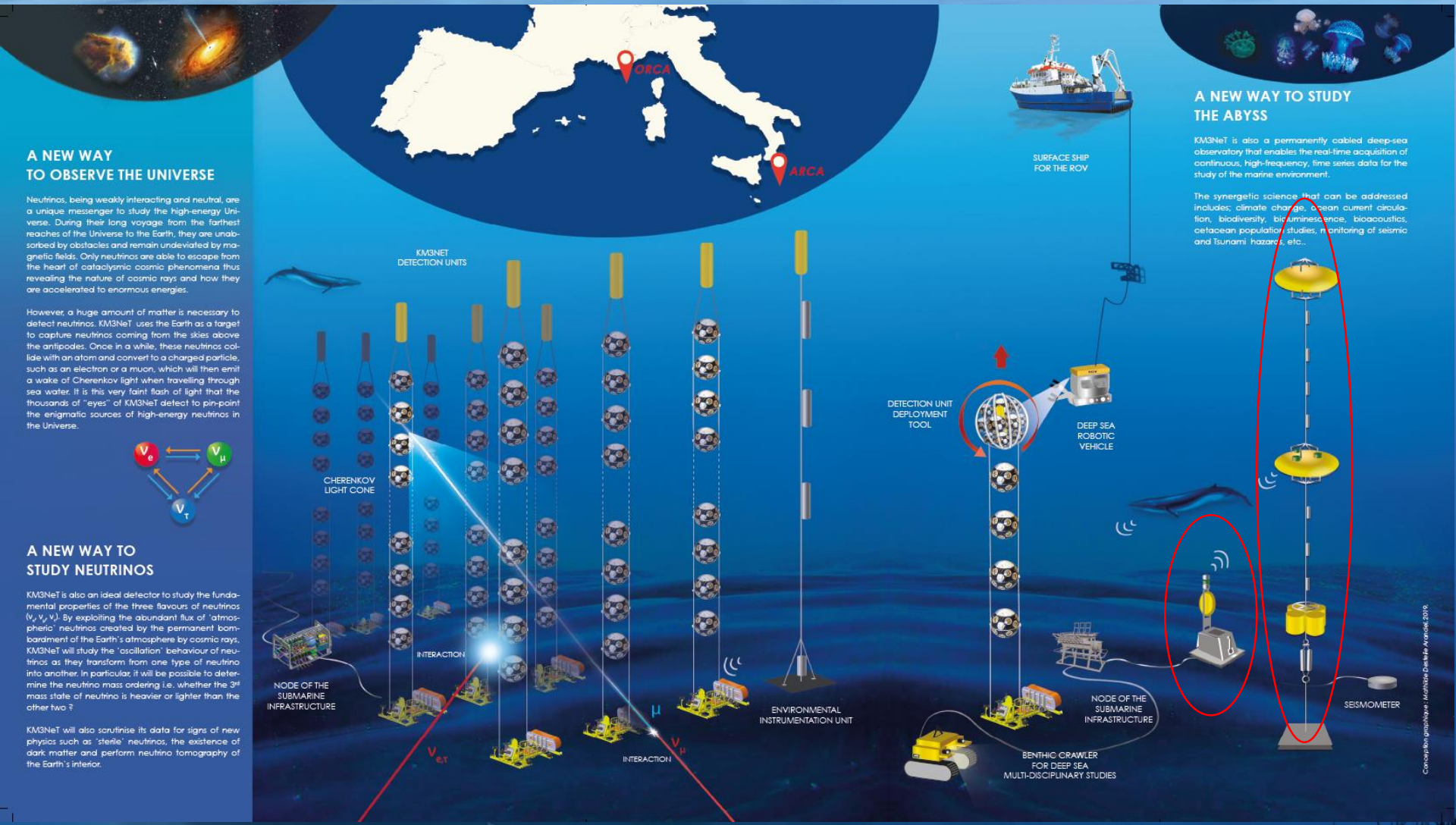
Ligurian Western site EMSO – KM3NeT

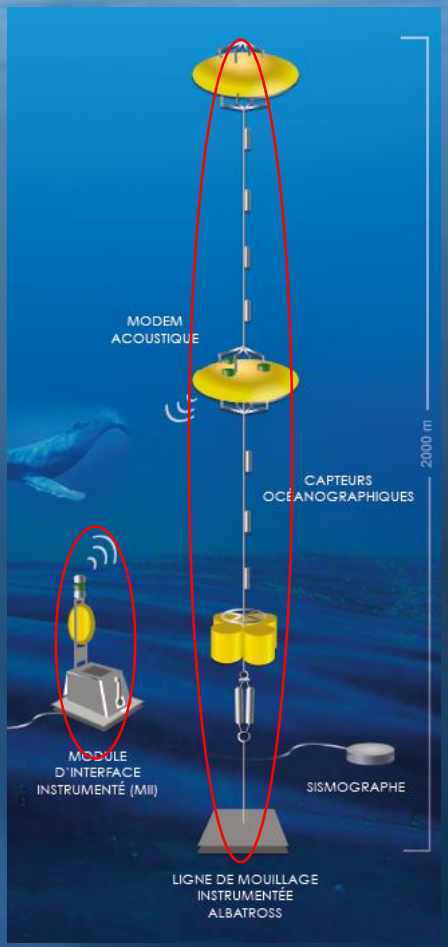
The underwater observatory is located off Toulon at a depth of 2500 m and is connected to the ground by an electro-optical cable of about 40 kilometres.



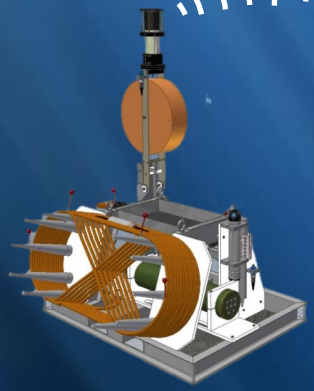
Ligurian Western site EMSO – KM3NeT



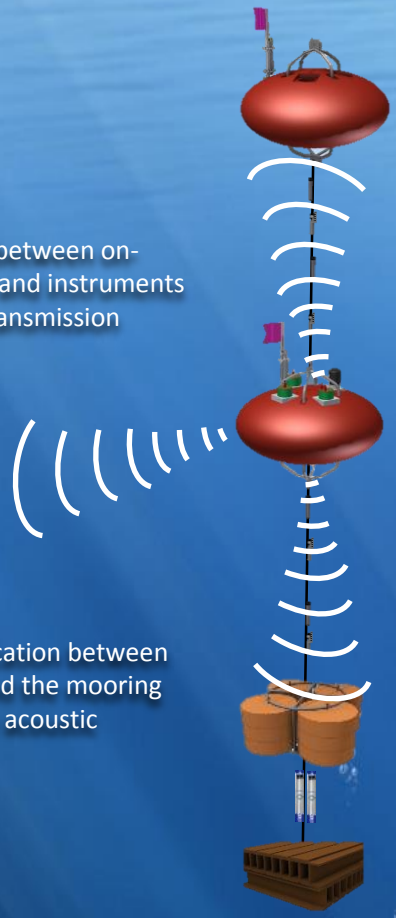
Operating principle of the ALBATROSS mooring line



Communication between on-board computer and instruments is by inductive transmission



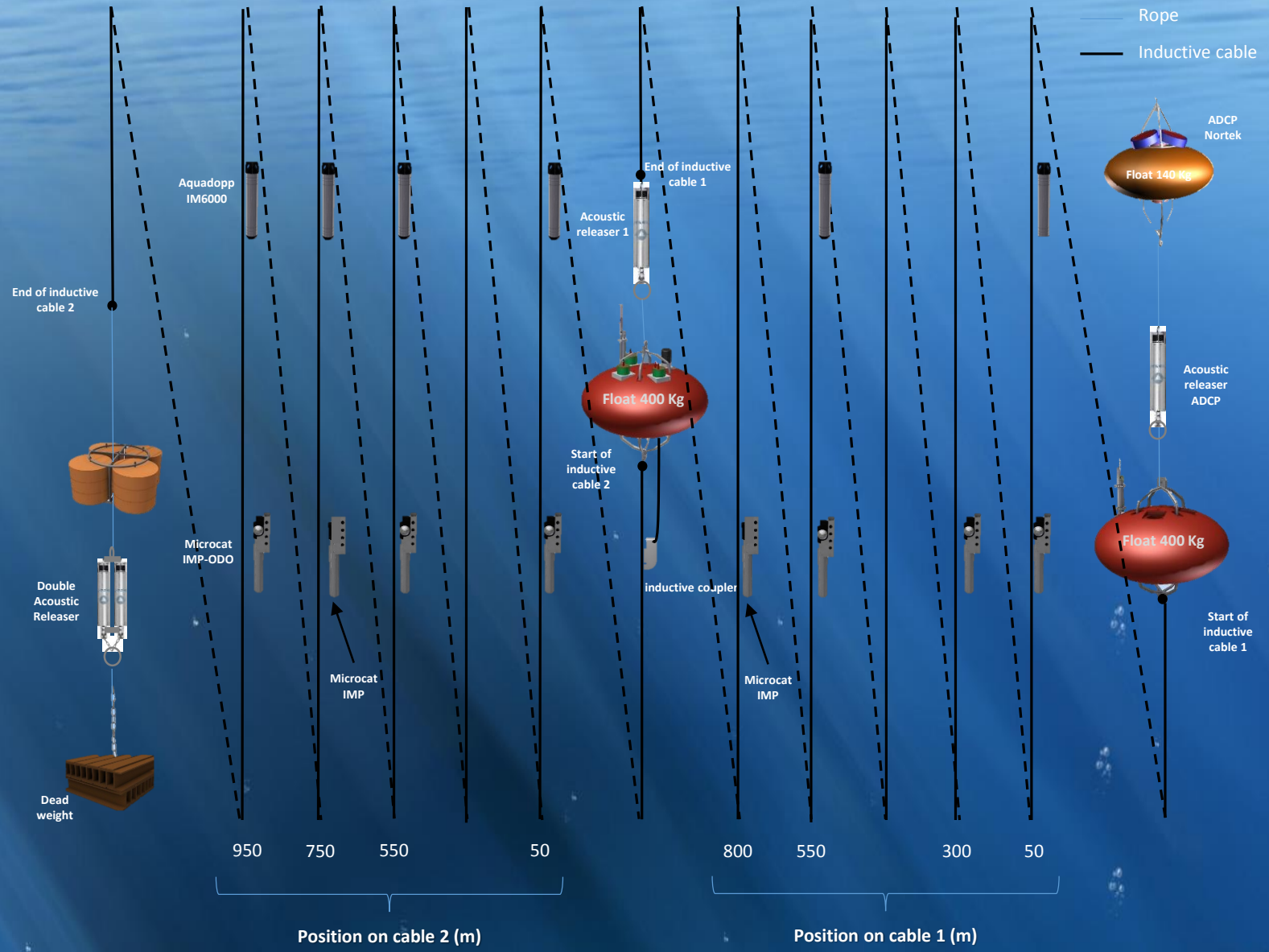
The communication between the module and the mooring line is done by acoustic modems



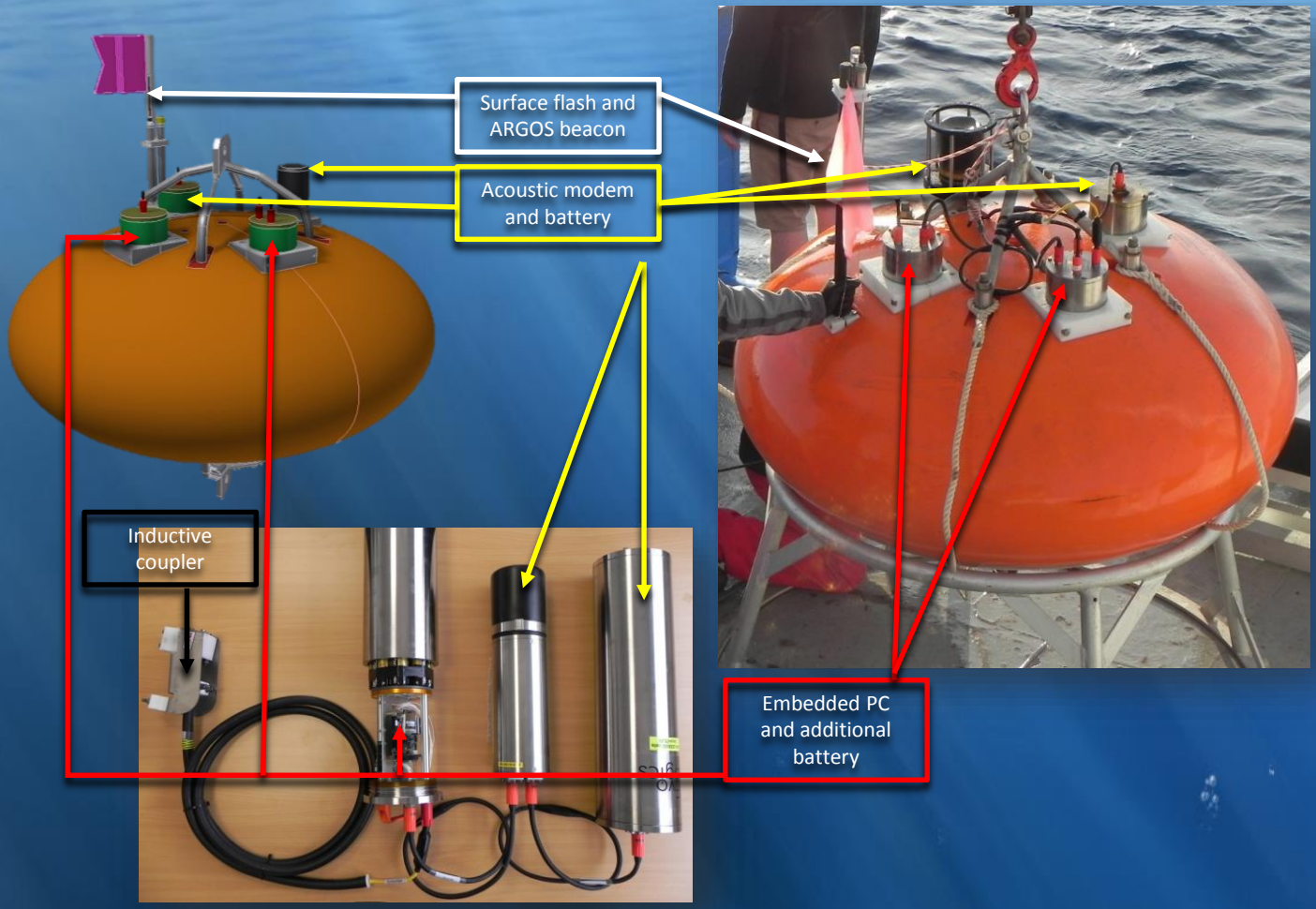
Instrumented Interface Module (MII)

ALBATROSS (Autonomous Line with a Broad Acoustic Transmission for Research in Oceanography and Sea Sciences)

Schematic of the ALBATROSS mooring line (2019)

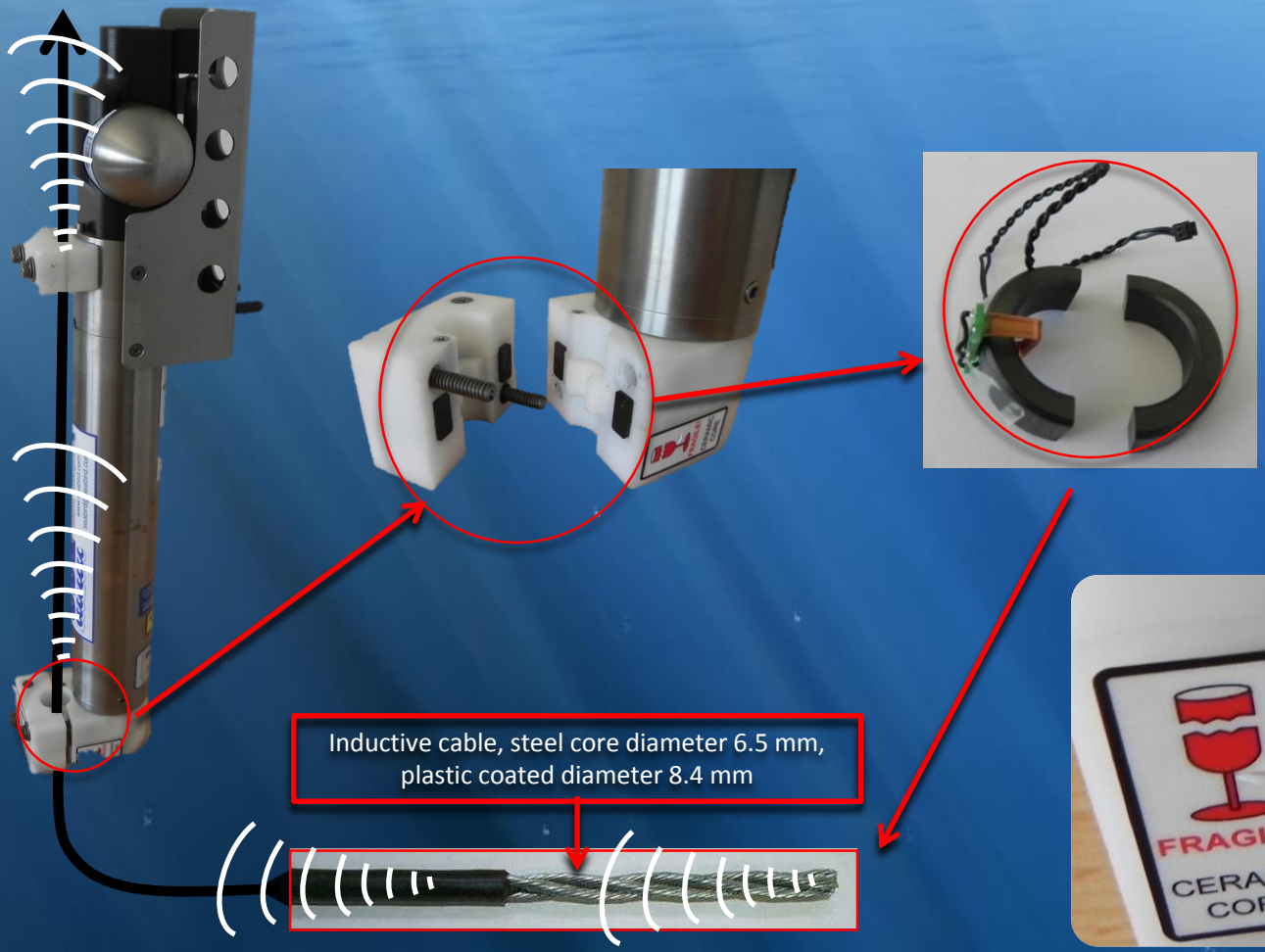


Embedded systems



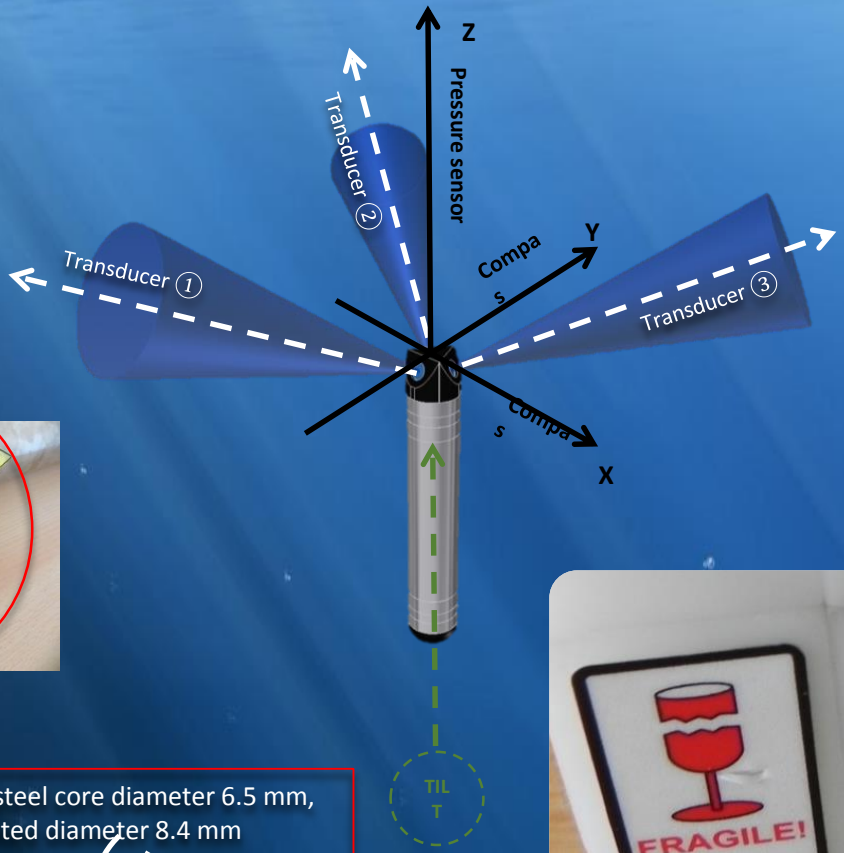
Oceanographic sensors

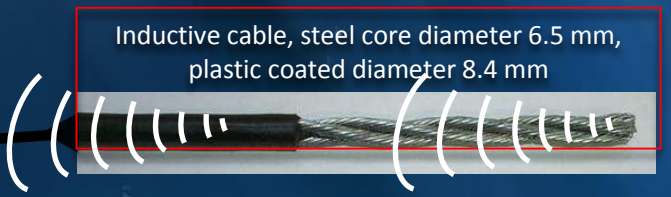
Seabird MicroCat IMP-ODO
(Conductivity, Temperature, Depth and Disolve Oxygen)



Oceanographic sensors

Nortek Aquadopp IM6000
Deep water current meters





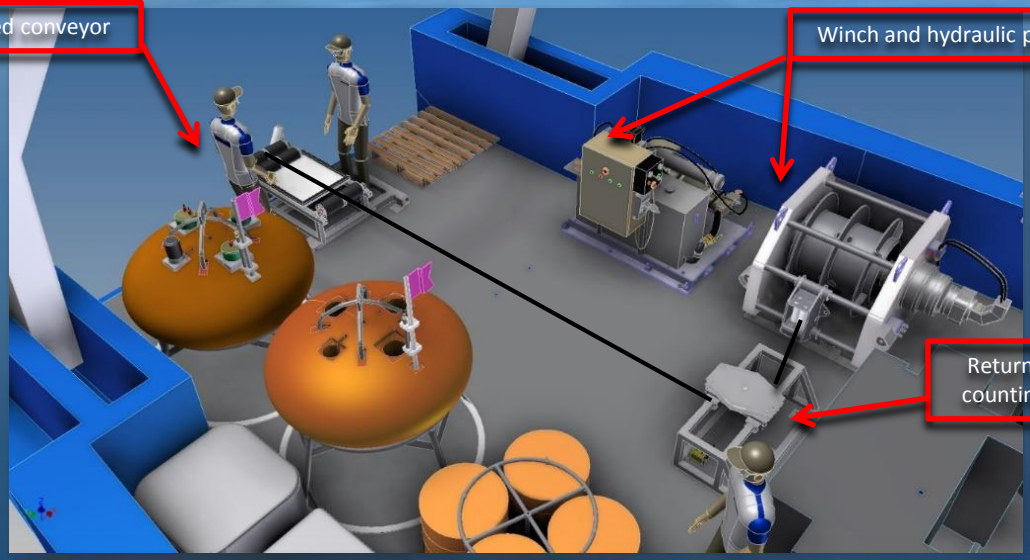
Sea operations

Actual supporting research vessel

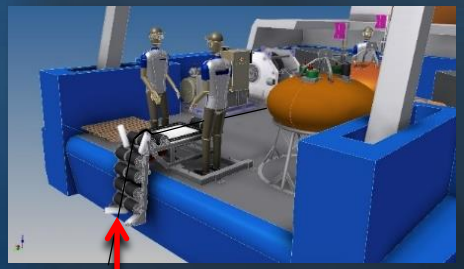
The TETHYS II oceanographic vessel of the French National Fleet
Overall length: 24.90 m
Overall width: 7.50 m
Draught: 3.20 m

Sea operations

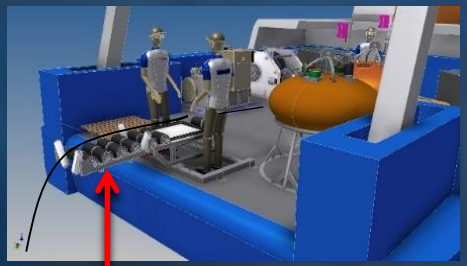
Tools developed for the deployment and recovery of the ALBATROSS line



3D modeling of the TETHYS II



Articulated conveyor in low position



Articulated conveyor in the upper position

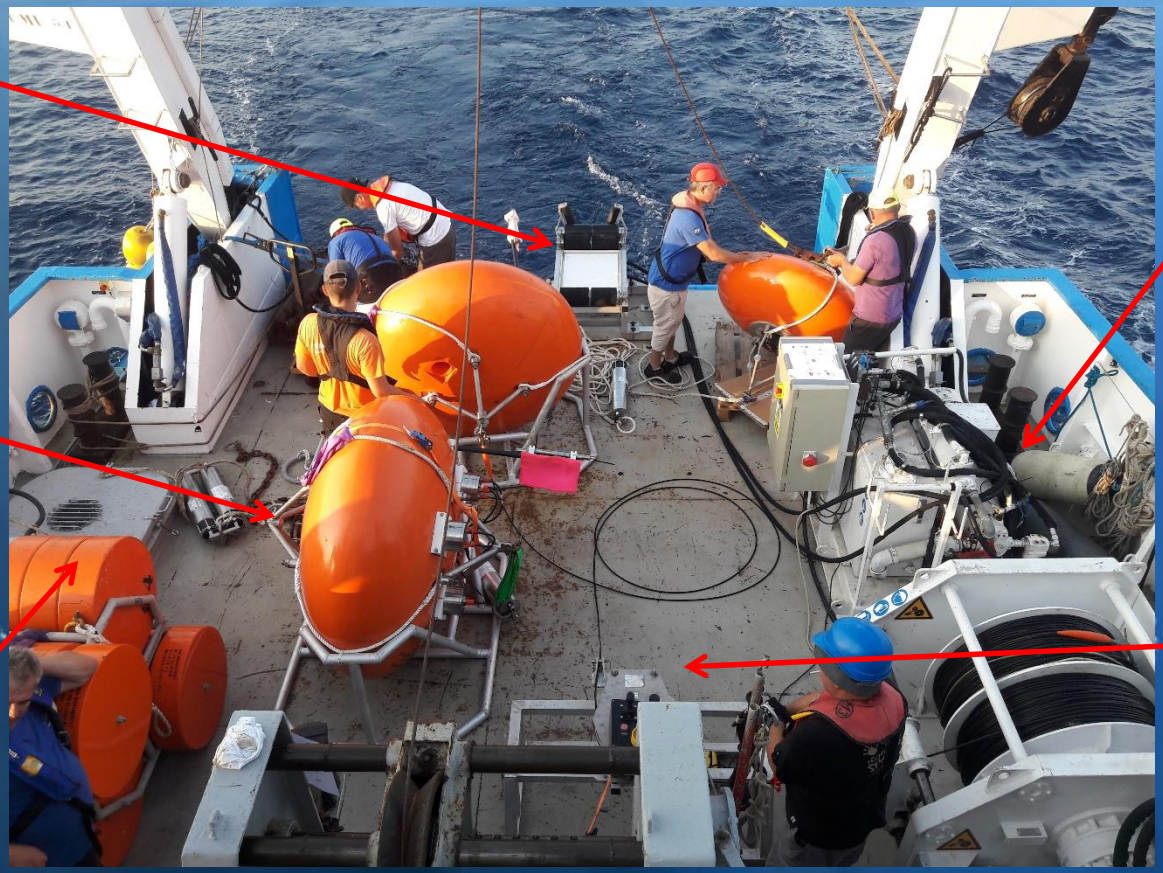
Sea operations

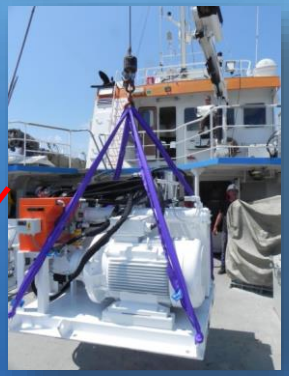
The real life

Conveyor belt

Lenticular floats

Security float

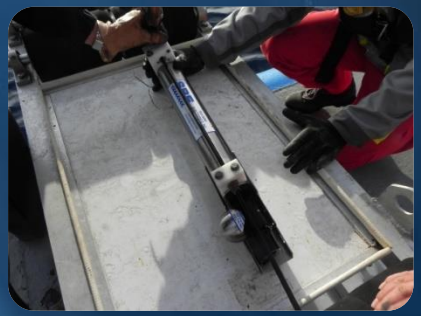




Winch and hydraulic power unit

Return pulley

Sea operations

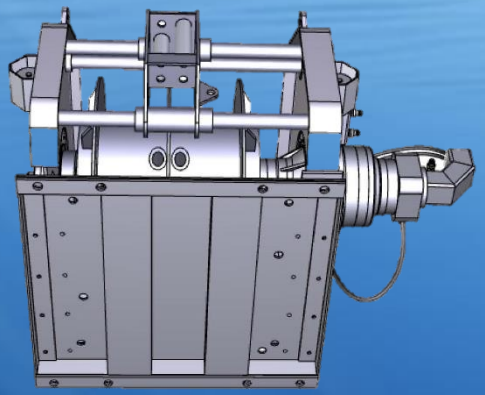


Instrument on the conveyor

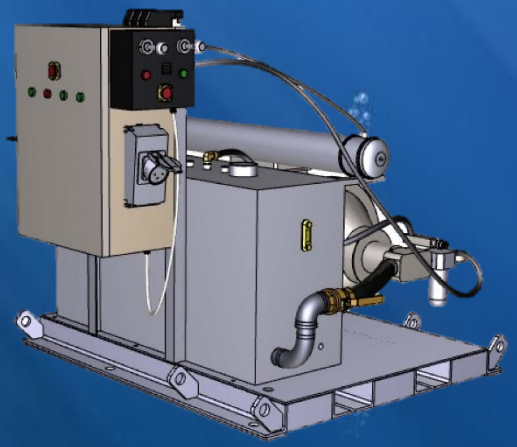
Cable in the return pulley

Cables on the winch

future offshore operations



Winch



Hydraulic power unit

Objectives

Maintenance operation of the ALBATROSS mooring line during a mission onboard the oceanographic vessel "Pourquoi pas?".
Mechanical, electrical and hydraulic adaptation

=> Validation of tool interoperability (available to the community for the implementation of inductive mooring lines).

Thank you for your attention