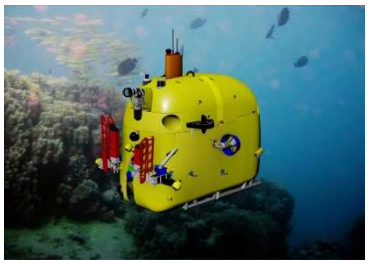
R/V L'Europe – A ship with new capabilities

R/V l'Europe

- **A coastal twin-hull built in 1993**
  - ✓ Length : 29,60 m
  - ✓ Width : 10,60 m
  - ✓ Crew : 8 persons
  - ✓ Science : 8 persons

- **A major modernization in 2014 :**
  - ✓ New sensors for fish stock assessment cruises
  - ✓ Installation of the new Ifremer Hybrid ROV

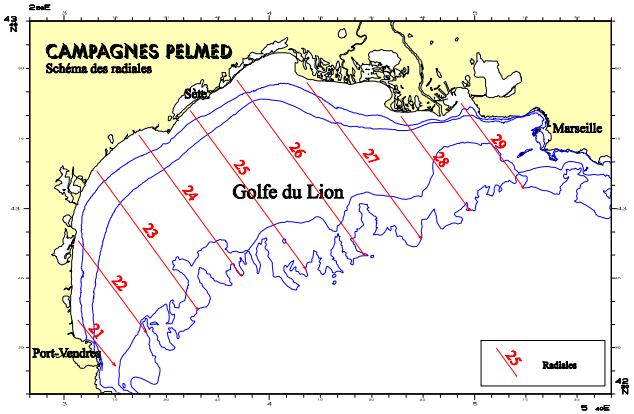


Pelagic species stock evaluation cruises

R/V l'Europe - PELMED cruises

Until now

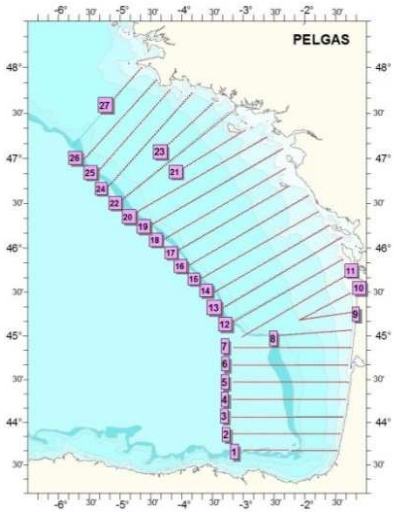
- **Echo-integration + 90 trawling + CTD**
- ✓ Pelagic trawls + Marport/Scanmar
- ✓ SBES ER60-12/38/70/120/ 200 kHz
- ✓ Software : MOVIES+, CASINO



R/V Thalassa - PELGAS cruises

- **Echo-integration + 68 trawling + CTD**
- ✓ Pelagic trawls + Marport/Scanmar
- ✓ MBES Simrad ME70 - SMFH
- ✓ SBES ER60-12/38/70/120/200/333 kHz
- ✓ Software : HERMES-MOVIES-MOVIES3D-CASINO-PUPITRI-RAPTRI-SUMATRA

Objective is have similar tools on L'Europe and Thalassa

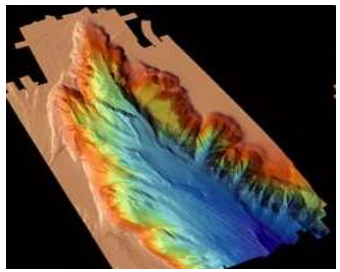


Refit of R/V l'Europe

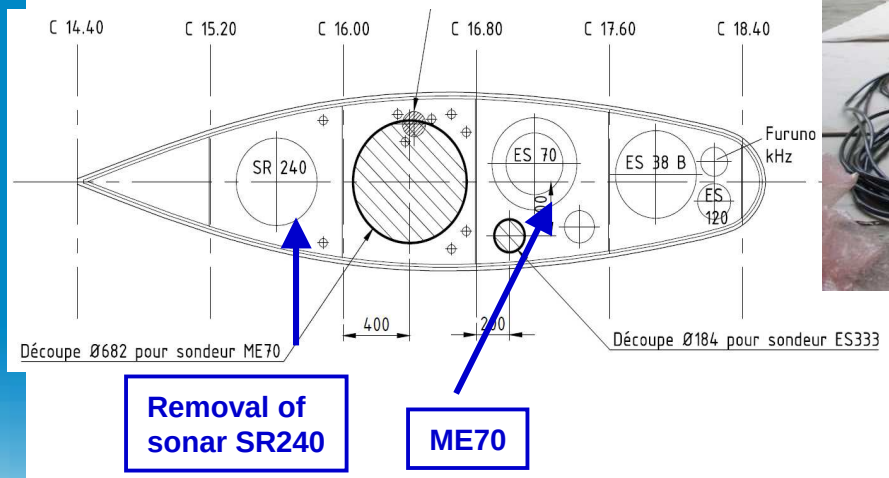
- **Equipment upgrade**
  - ✓ Fishery MBES ME 70
  - ✓ Fishery SBES 333kHz
  - ✓ USBL positioning system
  - ✓ Mobile equipment : ADCP, EM2040
  - ✓ New MRU
  - ✓ Scientific instruments

- ✓ **Refit of IT network infrastructure**
- ✓ **VSAT installation**

- ✓ **Installation of new software**

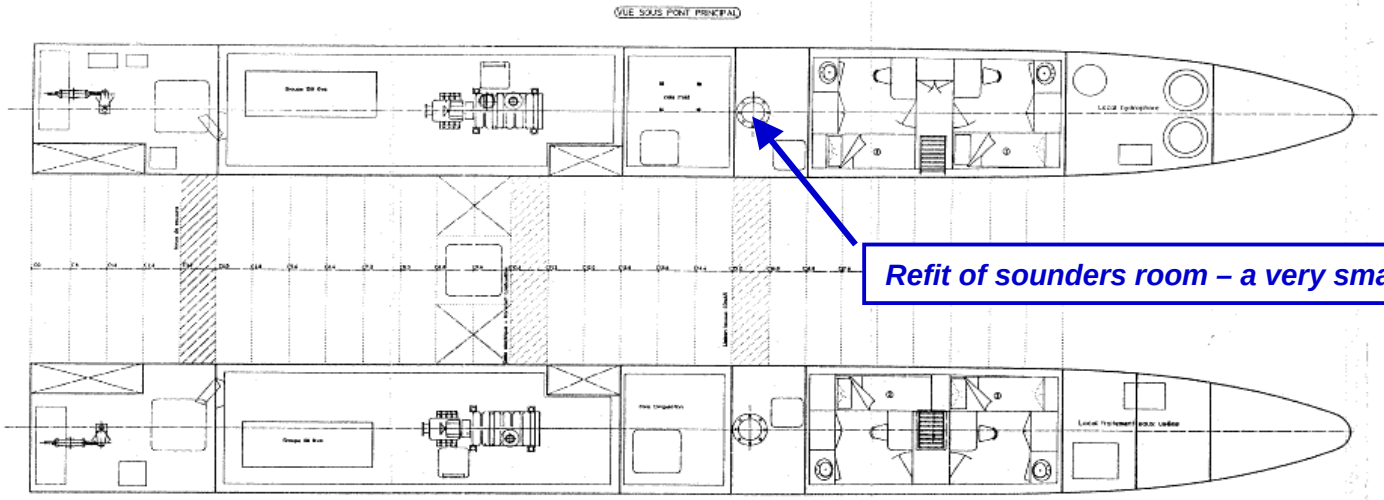


ME70 integration



Removal of sonar SR240

ME70



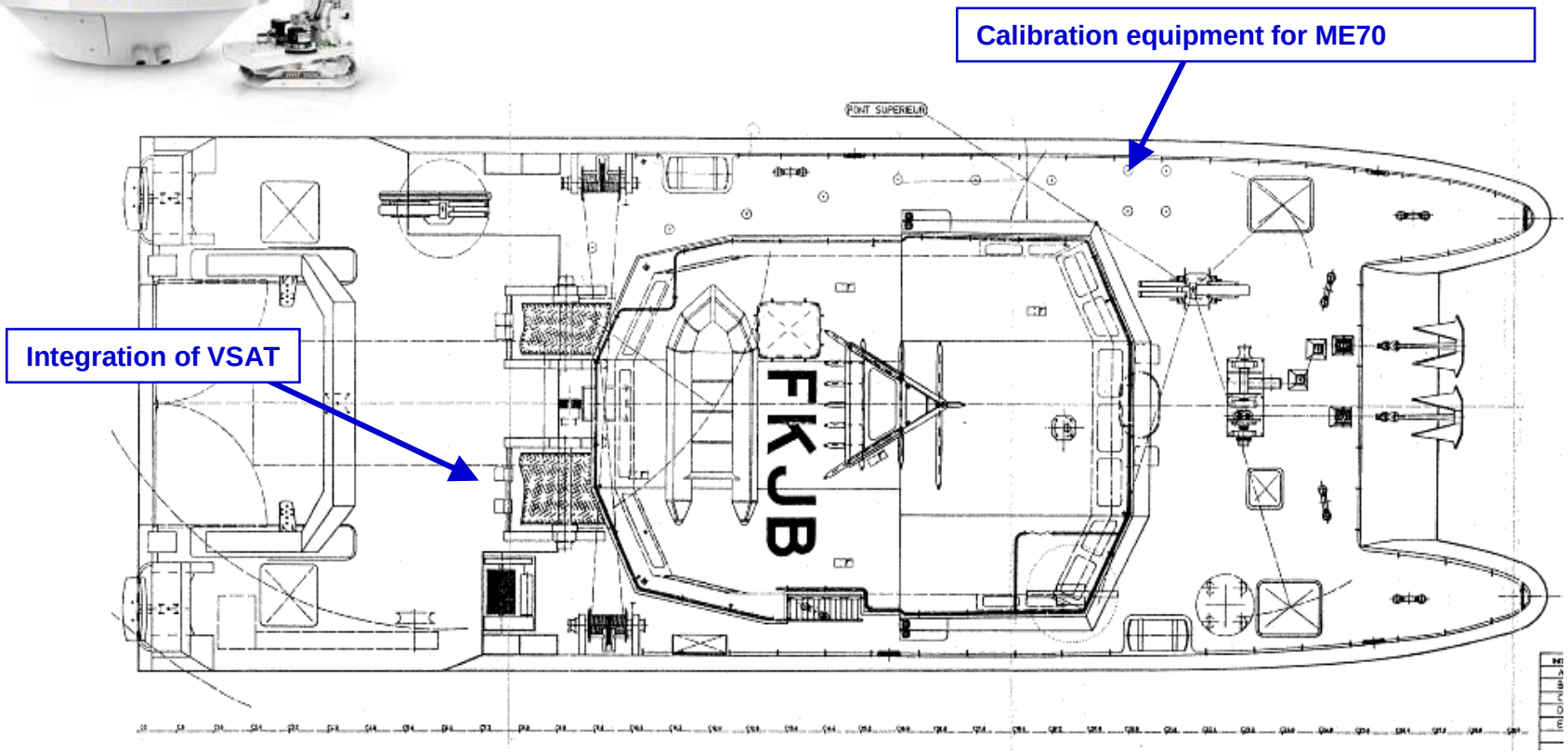
Refit of sounders room – a very small room

ME70 cabinet

MARPORT system

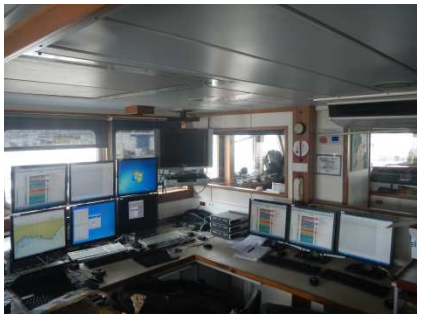
ME70 power supply

Upper deck



- **Telepresence**
  - ✓ Tele maintenance
  - ✓ Tele assitance
  - ✓ Tele processing

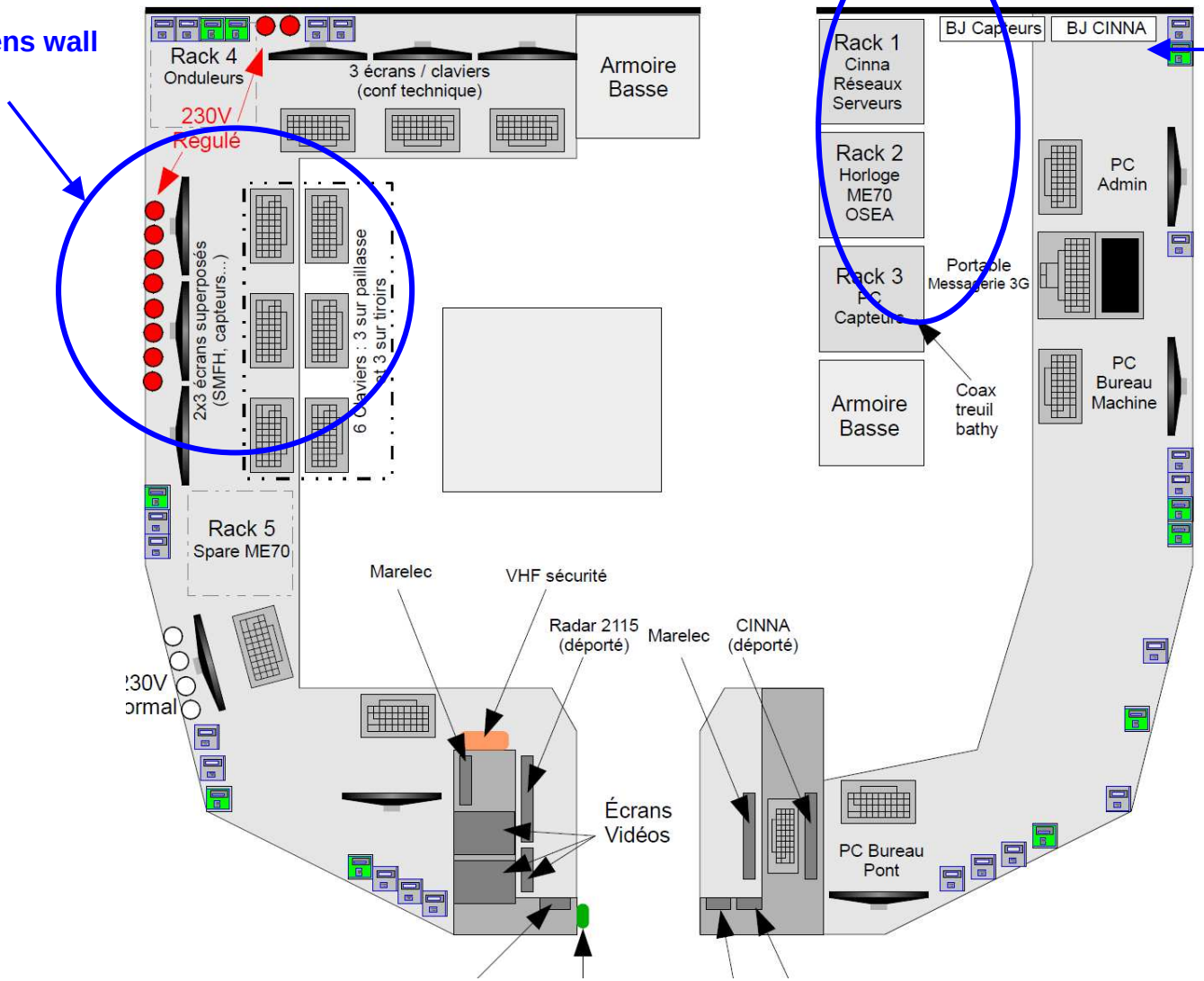
Scientific space



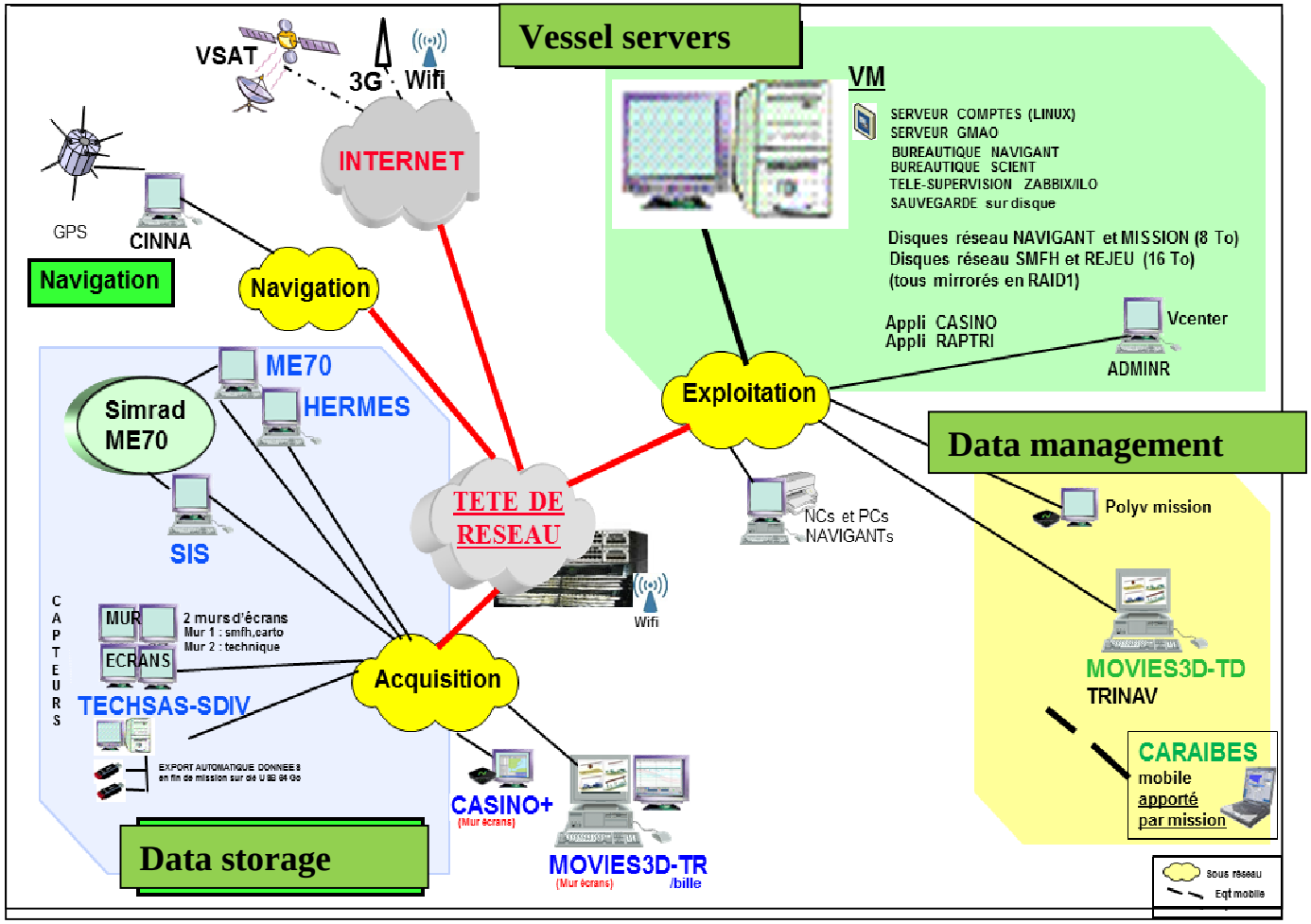
Vessel servers

Screens wall

Storage rack



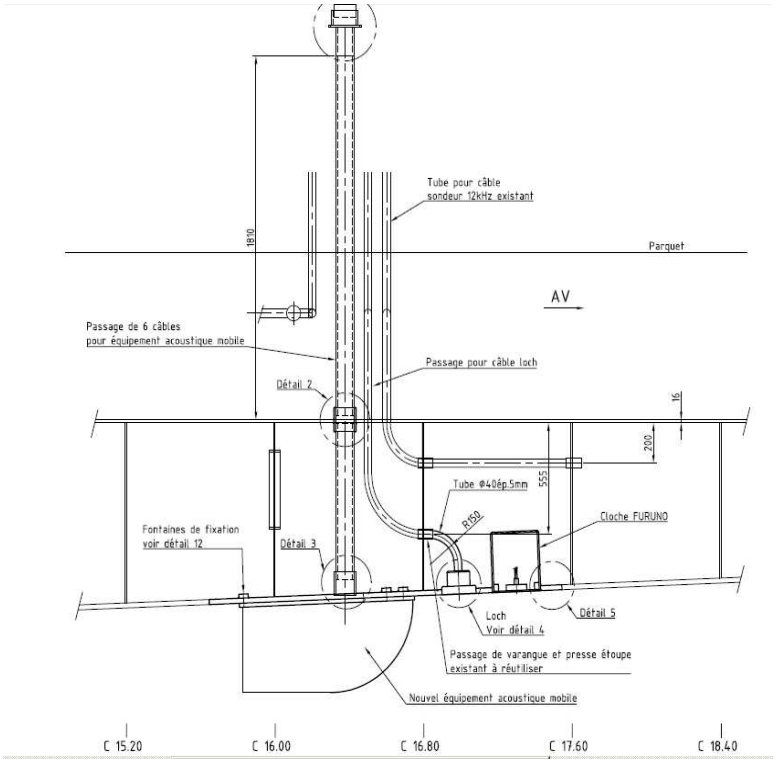
IT Network


Vessel servers
VM
SERVEUR COMPTES (LINUX)
SERVEUR GMAO
BUREAUTIQUE NAVIGANT
BUREAUTIQUE SCIENT
TELE-SUPERVISION ZABBIX/ILO
SAUVEGARDE sur disque
Disques réseau NAVIGANT et MISSION (8 To)
Disques réseau SMFH et REJEU (16 To)
(tous mirrorés en RAID1)
Appli CASINO
Appli RAPTRI
Vcenter
ADMINR
VSAT
3G
Wifi
INTERNET
GPS
CINNA
Navigation
Navigation
Exploitation
Data management
ME70
HERMES
Simrad ME70
SIS
TETE DE RESEAU
Wifi
NCs et PCs NAVIGANTs
Polyv mission
CAPTEURS
MUR
ECRANS
2 murs d'écrans
Mur 1 : smfh,carto
Mur 2 : technique
TECHSAS-SDIV
EXPORT AUTOMATIQUE DONNEES en fin de mission sur de U BE 64 Go
Acquisition
MOVIES3D-TD
TRINAV
CARAIBES
mobile
apporté
par mission
CASINO+
(Mur écrans)
MOVIES3D-TR
(Mur écrans)
/bille
Data storage
Sous réseau
Eqt mobile

Mobile equipment

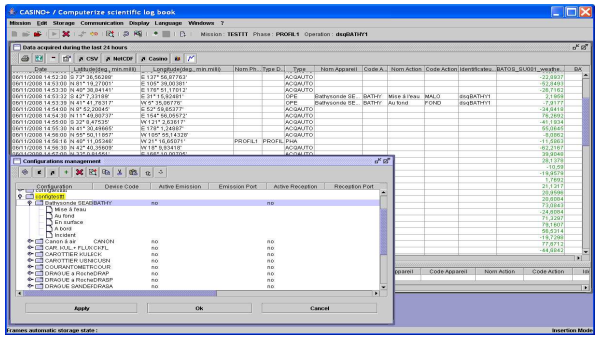
EM2040

Missions	*Mobile Equipment*
AUV et HROV	GAPS, MATS, hydrophone
Fishery	ADCP
Geosciences	EM2040
Physics	ADCP + pinger 12kHz.



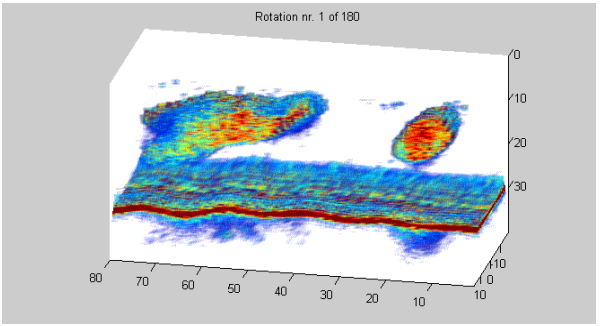
GAPS, MATS

Software

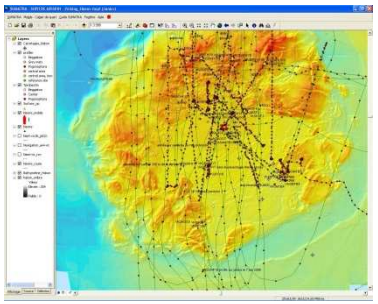


- **Data acquisition (except ME 70)**
  - ✓ **TECHSAS for data acquisition + SEADATAVIEW for visualization**
  - ✓ **Supervision displays available on ship and on shore (scientists & operators)**

- **ME 70 data acquisition and processing**
  - ✓ **HERMES, MOVIES 3D & MOVIES (idem *Thalassa*)**
  - ✓ **SVP Editor for sound speed profile**

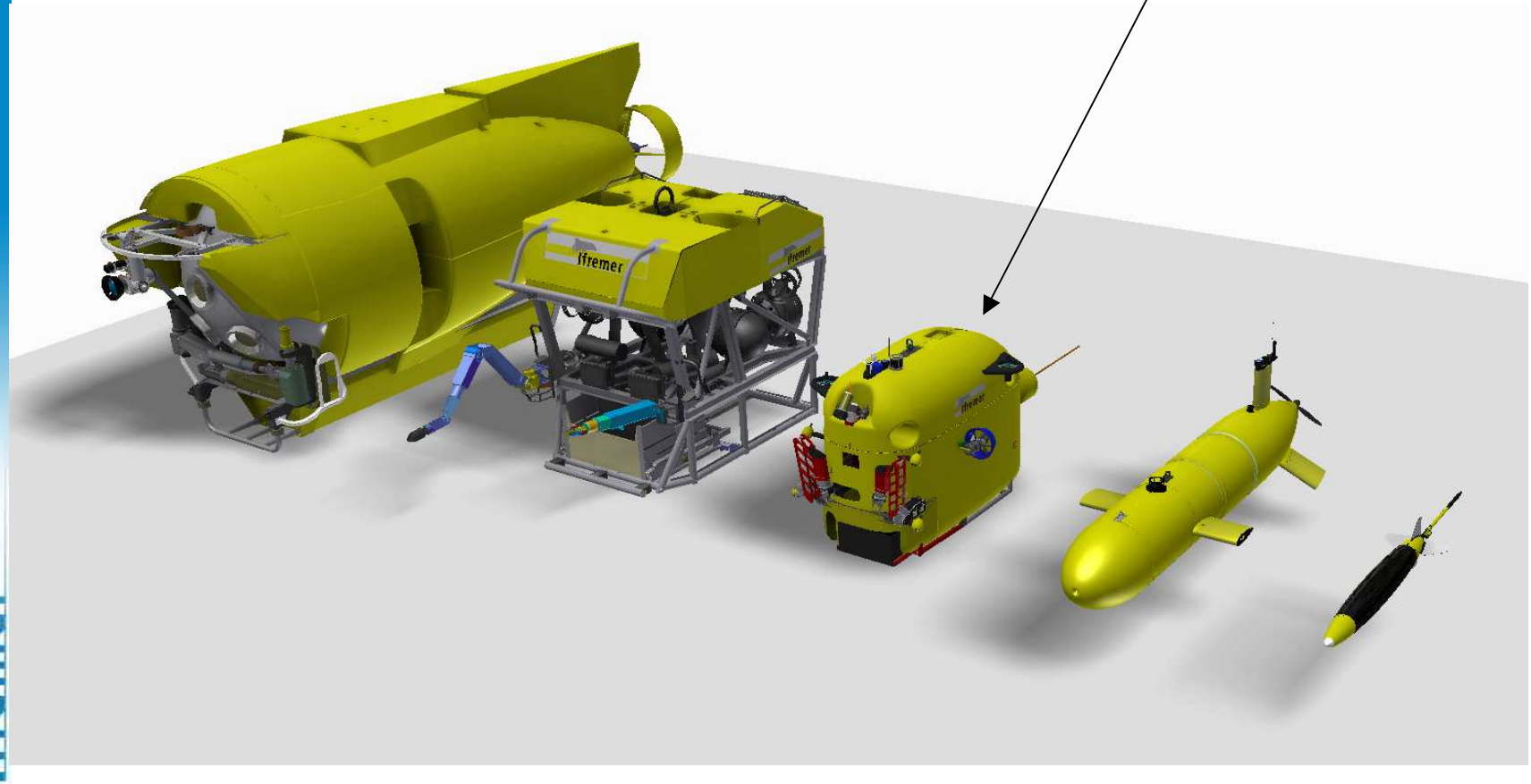


- **Cruise follow-up**
  - ✓ **SUMATRA (idem *Thalassa*)**
  - ✓ **CASINO+ Logbook (idem *Thalassa*)**



Family picture

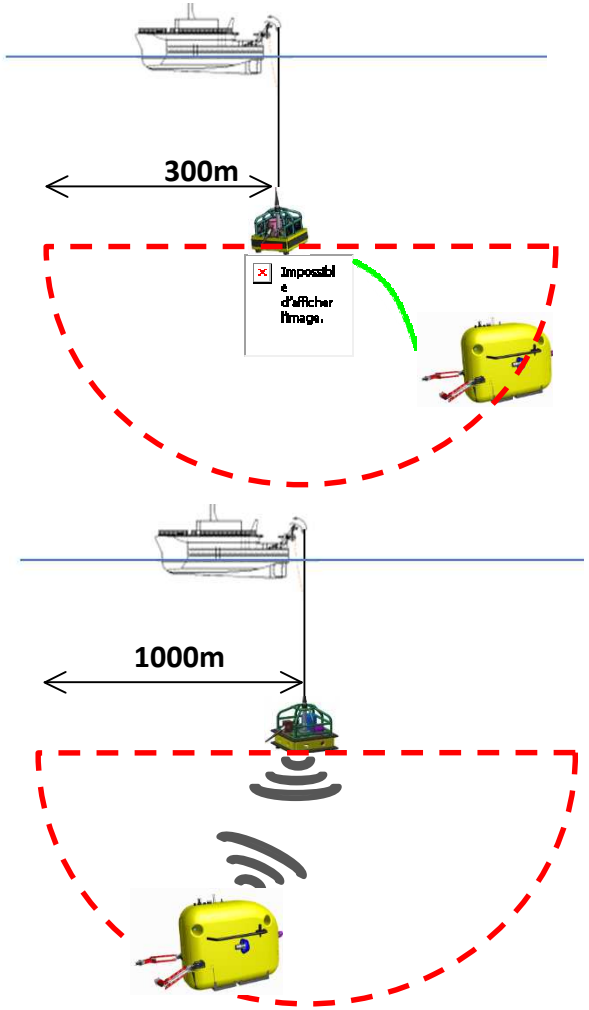
Development of the Hybrid ROV and integration on RV L'Europe



Concept

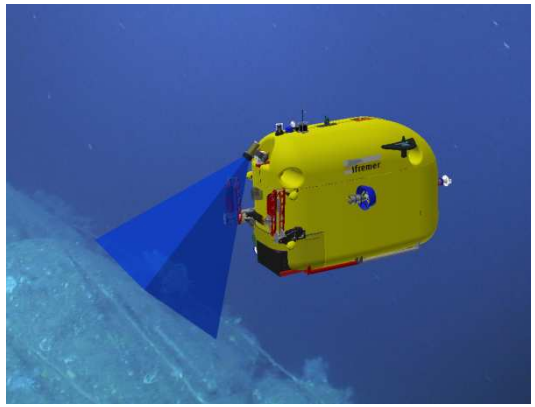
- **Hybrid ROV = vehicle that can be deployed :**
  - ✓ in ROV mode
  - ✓ In AUV mode

- **Deployment from coastal ship without DP**



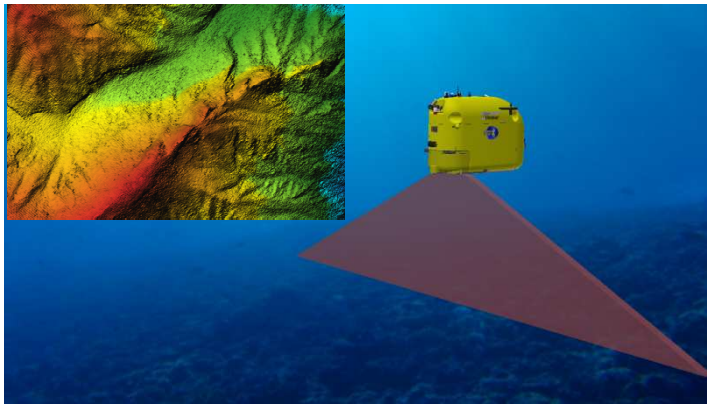
Missions

- **Inspection** and mapping (AUV and ROV)



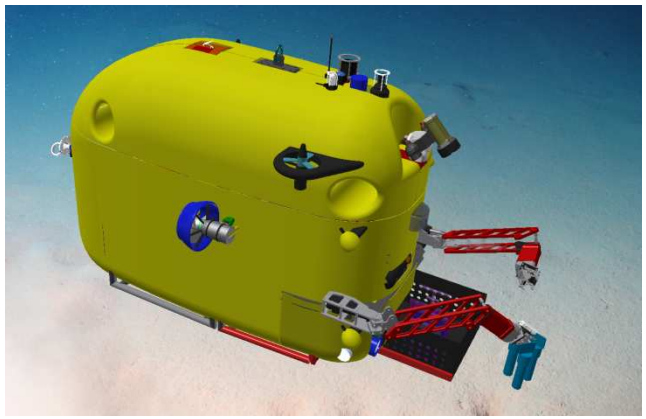
Video HD

Optical mapping

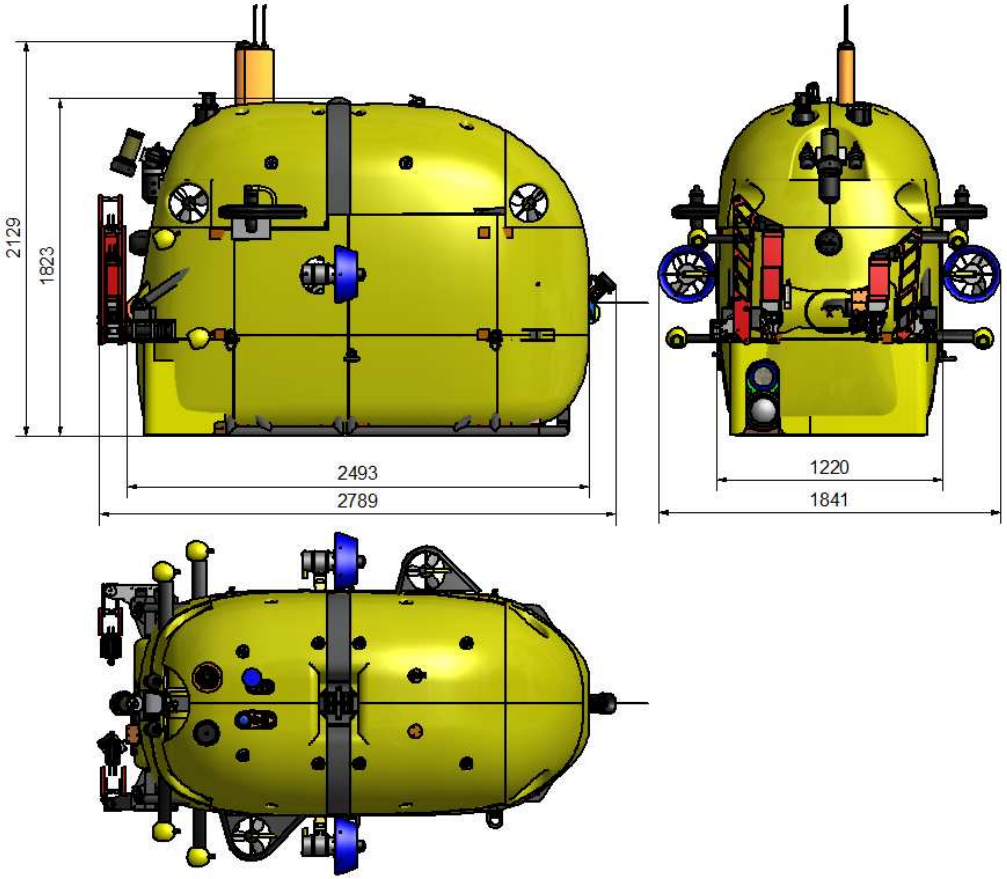


Acoustic mapping

- **Light sampling** in ROV mode : coring, fauna, flora



Vehicle



Energy : 20kWh

❖1 Battery Li-ion 13kWh@150Vdc

❖ 3 modules Li-ion 2kWh@48V

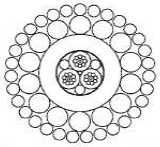
	Light onfiguration		Heavy configuration	
	masse dans l'air	In water weight	masse dans l'air	In water weight
HROV	**1,6 tonne**	- 5 daN	**1,8 tonne**	- 5 daN
Payload	80 kg	50 daN	220 kg	120 daN

Type of mission	autonomy
Inspection - 0,5nd	7h à 12h
Manipulation	8h à 12h
Survey at 1 knt	5h à 10h
Survey at 1,5 knt	3h à 4h
Survey at 2 knt	1h30 à 2h


500 KG


victor 6000
ifremer

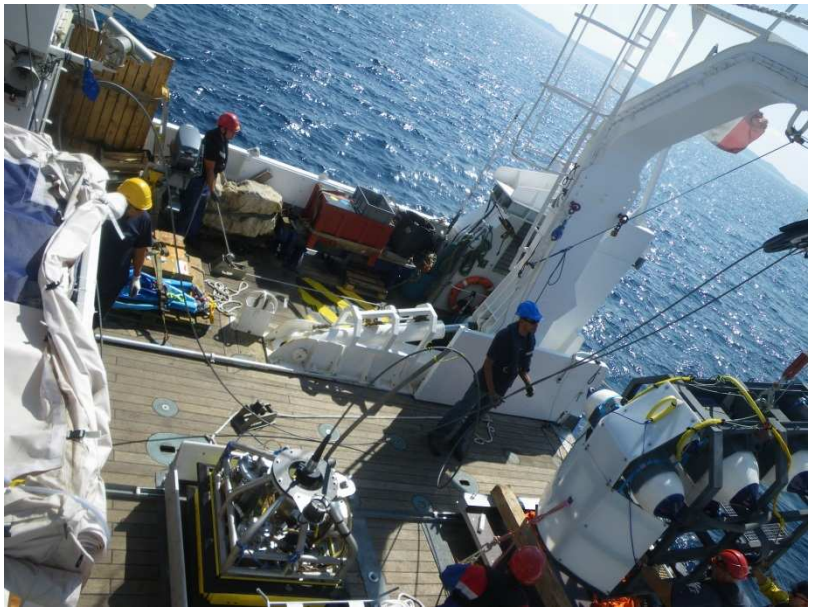
Winch installation

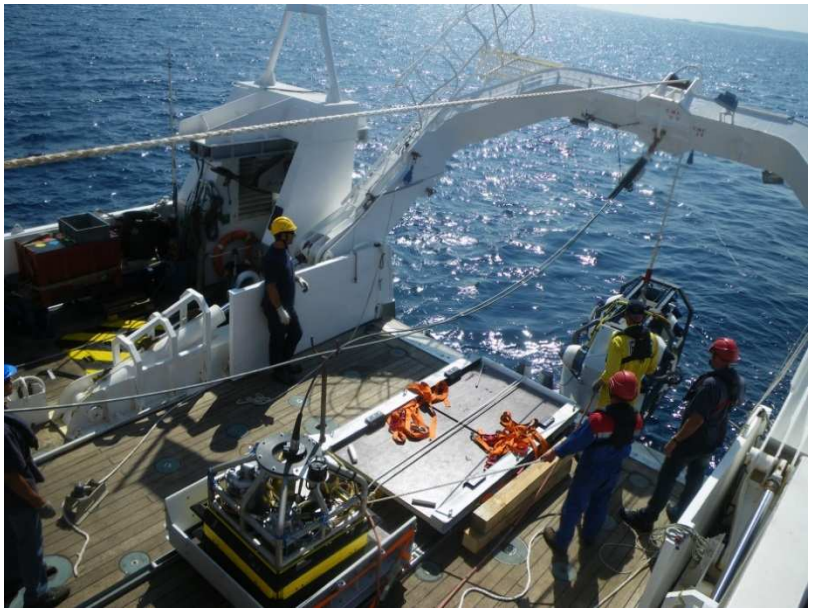


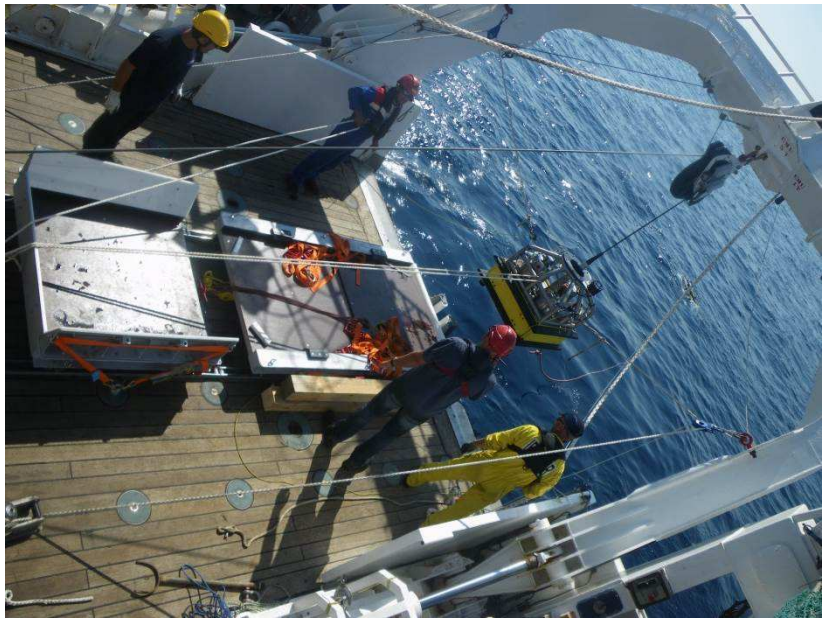
Cable
Diameter : 14,96mm
Length : 3000m
Mass : 812 kg/km
Weight in water : 660 kg/km
WL: 39kN, BS : 15,6kN

Winch
Mass : 3960 kg (without cable)
Masse : 6396 kg (with cable)
Dimensions: 2450*1980*1900 mm
SWL: 40 kN à 0,6 m/s

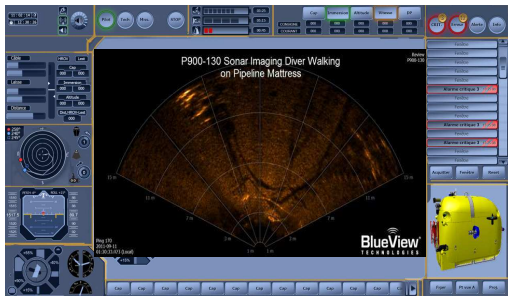
Deployment







Control room



3 persons : Pilot/co-pilot/scientist

✓1 server cabinet 4U

✓6 screens

✓ Surface Controm System : Panel PC Tactil + Gamepad USB (x2)

Thanks for your attention