National fleet

Fleet owned/operated by 4 national institutes

- Ifremer: 5 ships from 25 to 107m
- IPEV: 1 ship – 125m
- CNRS: 2 coastal ships – 25m
- IRD: 2 regional ships 25-35m

To improve

- Coordination of fleet planning
- Standardisation of scientific equipment
- Visibility for our ministries (fleet renewal plan)
From January 2018:

Ifremer will manage:

- The national fleet maintenance and upgrade
- The national fleet planning
- The fleet renewal plan

New Ifremer internal organisation:

- Merging of technical and program divisions = approx 70 people
Mid life R/V Thalassa refit

**RV Thalassa**
- Built in 1996
- Length: 73.6m
- Width: 14.9m
- Disp.: 3022t

**Modernization**
- Project cost: 17 M€ - Britany region, ANR and FEDER
- Shipyard: PIRIOU NAVAL SERVICE – Concarneau, France
- Dry dock: June 3th – Sept 18th 2017
- Trials: until Oct 2th 2017
The R/V Thalassa is an oceanographic ship mainly dedicated to the missions of public service in the field of fish stock assessment and physical oceanography.

The aim of this modernization is to enlarge the capacity of the vessel in the fields of marine geosciences and deep sea environment.

The objectives of the modernization are:
- to ensure the remedial and curative maintenance at mid-life of the vessel,
- to modify vessel accommodation,
- to replace all obsolete scientific equipment by up-to-date ones,
- to provide a reliable and efficient platform appropriate to the coming 20 years of marine science.
Scientific equipment up-grade

**Fisheries:**
- EK60 ➔ EK80 (18, 38, 70, 120, 200, 333 kHz)
- 120kHz horizontal ranging
- new ME70 transducer (12 years old)
- Trawl monitoring system (Marport): no changes (positioning, openings...)
- ADCP: no change
- Hydrophone reference monitoring system (sabrina): upgraded

**Addings:**
- MBES: EM304 0,5°x1°+ EM2040 0,4°*0,7°
- Sub-bottom profiler
- USBL for ROV/AUV + Acoustic release system (IXBLUE)
- DVL (many systems currently in testing)
The new fairing

No gondola => same draft kept
A fairing under the keel
Underway Measurement system (FERRYBOX) :

- conductivity (SBE21 + SBE45, temperature SBE38/SBE3S at water intake,
- dissolved oxygen,
- fluorimeter, turbidity,
- pCO2,...

Provided by 4H JENA (Germany)
Informatics

• IT renewal: new storage capacity 20 TB => 100 TB, network: 1 Gbps ethernet for users, 10 to 40 Gbps, WIFI everywhere, new wall screen (AVOCENT/EMERSON)

• Data acquisition, visualisation and transfert to shore – TECHSAS New Generation in development – Installed in double for endurance testing
Two new cranes

New oceanographic HEILA knuckle crane
180t.m – 2 winches (4t & 13t) – 20m at full extension

SWL offshore conditions
Dynamic 5t@8,5m
Static 10t@4,5m
Aux. winch 1t@8,5m

Custom design crane (KLEY FRANCE) for new CTD L/R and coring operations - Starboard shell plating opening and reinforcement
Large maintenance

• New gensets – Caterpilard 2*1500KVA & 2 * 1000 KVA
• New main propulsion converters (Thyristors to IGBT),
• New Power Management System (PMS)

• Sheep steel central trawl track replace by a new one (10mm has reduced to 7mm)
Comparison before and after modernisation – ICES standard
Seismic equipment renewal

SERCEL solid streamer technology

2014-2015
- 2D equip. with 4500m streamer
- HR 2D equip. with 600m streamer

2016
- 2D equip. 6000m streamer
- 2D equip. 1200m streamer
- 3D equip. 2 * 600m streamer

2017-2018
- Airs guns deployment
- Final trials

Start 2014
2015
2016
2017
End 2018

2D = 1 flute + 1 source
3D = 2 flûtes min + 2 sources
Seismic equipment renewal

- KAPPA system (flexible floats) integrated in 2 * 40' containers
- 2 sub-arrays of 10 air guns max
- Guns depth adjustable 5, 10, 15m

2D High penetration seismic arrangement on R/V L'Atalante
POLAR POD
The new project of Dr Jean-Louis Etienne

• Concept: « Vertical scientific ship based on US FLIP (Floating Instrument Platform)
• Expedition: 2 years circum-navigation around Southern Ocean

• IFREMER is in charge of the construction of Polar Pod
POLAR POD

- 22m length
- 80m draft
- 60m air draft
- 1000 t
- 8 persons
- <1,5 knts drift speed
- 4 wind turbines (2,5 kW)
- Emergency DA
- Emergency propeller (200 kW)

Environmental conditions

- Mean wind : <65 knts
- Gust : 136 knts
- Max waves Hs=19 m

Towed horizontally to the gyre
A large panoply of scientific equipment

- SBES
- Hydrophones
- ADCP
- CTD, CO2, N2, O2, ...
- Lidars
- Samplers for contaminants
- Radiometers
- ROV
- ...

POLAR POD Scientific equipment
POLAR POD concept

Design
◆ Heave absorption 80%
◆ Surge acc. < 0.03g/wave height
◆ Vertical acc. < 0.007g/wave height
Transfert de personnel

Transfert
- Tous les 2-3 mois
- 8 personnes
- HS 4-5m
- Vent 5-6

Statistiquement
2 fois par an, un état de mer supérieur à Hs=4m dure plus de 17 jours d'affilée et 9 fois par an qu'il dure plus de 8 jours d'affilée.
Call for tender: October 2018

Construction: Until mid 2020

Trials: Until end of 2020 (6 month)

Arrivée sur zone: Juillet 2022

Circumnavigation: Mid 2021 – Mid 2023