

NEWS FROM IFREMER

OFEGTECH MEETING - 06/10/2022

IFREMER/DFO/NSE/NE (S. Duguay)



NSH #01A



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News from Ifremer

1. Works on *L'Atalante*
2. Upgrade of *Antea* and *Côtes de la Manche*
3. NSH
4. RV *Pourquoi pas ?* upgrade project
5. New sensor installed onboard Ifremer vessels: ADCP EC150

1. Works on *L'Atalante*



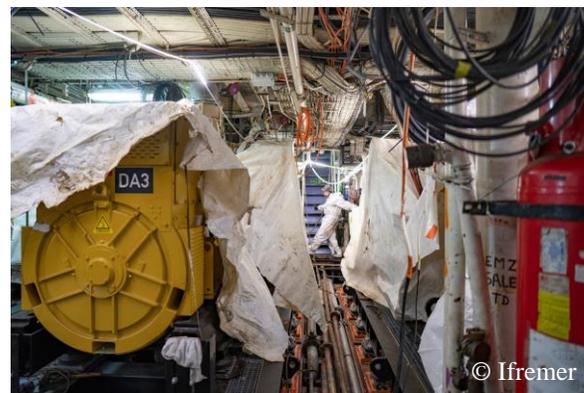
RV L'Atalante

- Built in 1989 and upgrade in 2009.
- Vessel of the French Oceanographic Fleet.
- Length: 85 m / beam: 16 m / displacement: 3550 tons.
- 30 scientists and 15 to 29 seamen.
- Multidisciplinary scientific campaigns (hydrography, oceanography, geochemistry, submersibles deployment, seismic acquisition...).
- Main operations: Atlantic ocean, Mediterranean sea and Indian ocean.

Upgrade project

- Objectives:
 - Maintenance works.
 - Change of gensets
 - Change of deep sea winch and lateral A-frame.
- Planning:
 - Upgrade + sea trials: autumn 2021 → winter 2022.
 - January 2022: vessel ready for scientific campaigns.

1. Works on *Atalante*



Main maintenance works

- Main diesel generators: replacement of genset (Eneria) + integration of SCR for Tiers III certificate.
- DP (dynamic positioning): system upgrade.
- Maintenance works: safety equipment, pumps, fridges...
- Various mechanical, piping, electrical.
- Painting works.

Deck machinery

- New subsea winch (CMU 15 tons, 20 tons at reduced speed).
 - Synthetic cable.
 - Increasing coring capacities
- New coring system : platform and booms.

2. Upgrade of *Antea* and *Côtes de la Manche*



RV Antea

- Built in 1996, Vessel of the French Oceanographic Fleet from 2019.
- Catamaran, Length: 35 m / beam: 12 m / gross tonnage : 571 UMS.
- 10 scientists and 9 to 13 seamen.
- Multidisciplinary scientific campaigns (hydrography, oceanography, geochemistry, submersibles deployment, seismic acquisition...).
- Main operations: Atlantic ocean, Mediterranean sea and Indian ocean.

RV Côtes de la Manche

- Built in 1997, Vessel of the French Oceanographic Fleet from 2020.
- Length: 25 m / beam: 7,5 m / gross tonnage : 144 UMS.
- 6 to 11 daily scientists and 7 seamen.
- Multidisciplinary scientific campaigns

Upgrade projects

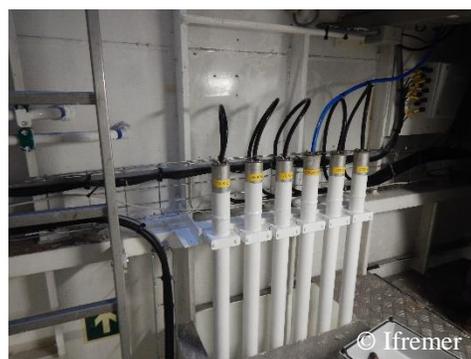
- Objectives:
 - Maintenance works.
 - Change of scientific equipment (sounders ...)
- Planning:
 - Upgrade + sea trials: autumn 2021 → winter 2022.
 - April 2022: vessel ready for scientific campaigns.

2. Upgrade of *Antea* and *Côtes de la Manche*



Main maintenance works

- Maintenance works: safety equipment, pumps, fridges...
- Various mechanical, piping, electrical.
- Painting works.



Scientific equipment

- Single beam echo sounder : Integration of EK 80 with several frequencies
- Multi-beam echosounder : EM2040C or EM712
- New ADCP : new sounders.

3. NSH



NSH

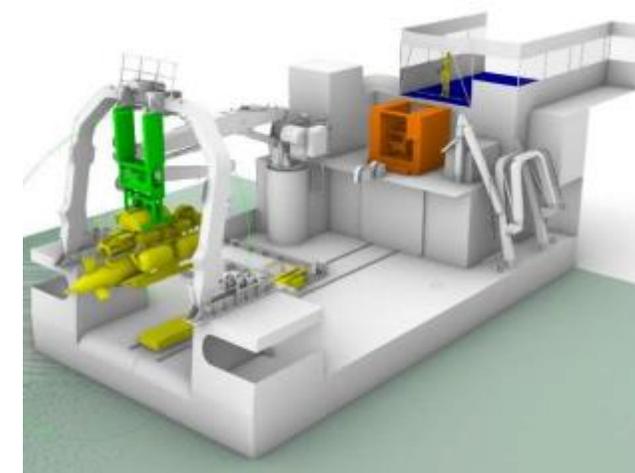
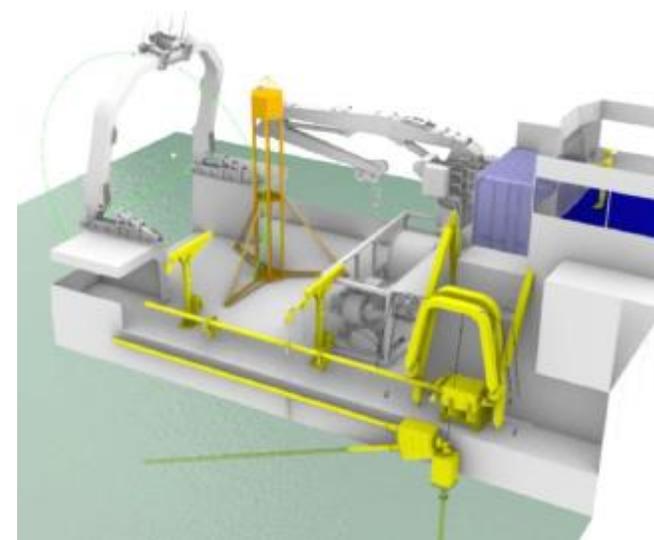
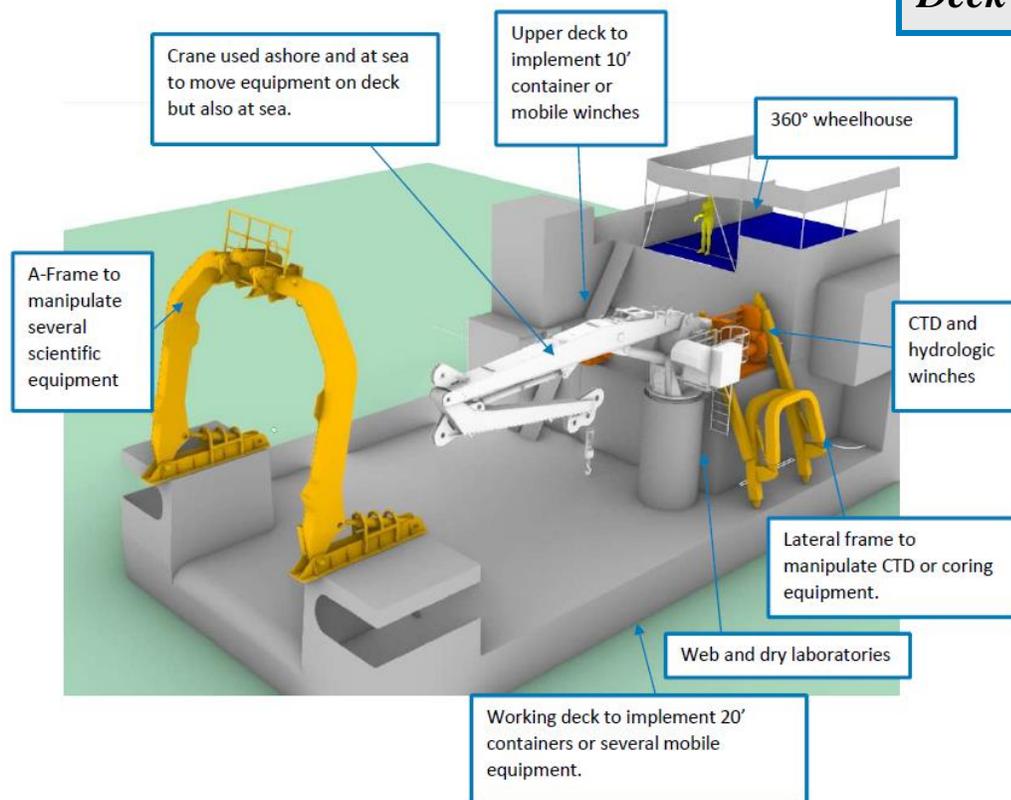
- New regional research vessel planned for mid-2025.
- Middle length between 35 to 45 m,
- 22 person on board including seamen.
- Multidisciplinary scientific campaigns (hydrography, oceanography, geochemistry, submersibles deployment, seismic acquisition, fishing...).
- Main operations: Atlantic ocean, Channel and West Indies punctually .

Project

- Objectives:
 - most flexible and modular than possible.
 - most compact than possible
 - reduce CO2 emission, up to 30-50% compare to a classic design
- Planning:
 - ongoing purchase procedure
 - Signature with shipyard : being of 2023
 - Middle of 2025: vessel ready for scientific campaigns.

3. NSH

Deck objectives



Scientific equipment – to be confirmed

- ADCP: 75 and 300 kHz.
- Single beam ES: several frequencies of EK80
- Multi beam ES: EM712 1°x 2° or 1° x 1°
- Various others equipment for laboratory – pocket ferrybox, SBE21 ...

4. RV *Pourquoi pas* ? upgrade project



RV Pourquoi pas?

- Built in 2005 (Alstom Leroux Naval, Saint-Nazaire, France).
- Vessel of the French Oceanographic Fleet, co-funded by France's military navy.
- Length: 107 m / beam: 20 m / displacement: 6600 tons.
- 40 scientists and 35 seamen.
- Multidisciplinary scientific campaigns (hydrography, oceanography, geochemistry, submersibles deployment, seismic acquisition...).
- Main operations: Atlantic ocean, Mediterranean sea and Indian ocean.

Upgrade project

- Objectives:
 - Maintenance work + mid-life upgrade.
 - Continuation of the vessel's missions for 20 additional years (→ 2045).
 - New high-level scientific equipment.
- Planning:
 - Upgrade + sea trials: autumn 2024 → spring 2025.
 - May 2025: vessel ready for scientific campaigns.
 - Some complementary upgrades planned in 2027.

4. RV *Pourquoi pas* ? upgrade project



Reduction of the vessel environmental impact

- Waste management → onboard storage improvement, zero discharge into the sea, zero gas emission.
- Heat recovery system with a new electric boiler.
- Shore power connection: capacity increase (2027).

Main maintenance works

- Main diesel generators: engine control upgrade (Wärtsilä).
- Electric motors: new converters for propulsion (GE).
- DSC (distributed control system): system retrofit.
- DP (dynamic positioning): system upgrade.
- Maintenance works: safety equipment, pumps, fridges...
- Various mechanical, piping, electrical and painting works.

Deck machinery

- Maintenance works (cranes, A-frame, hydraulic...).
- New subsea winches (CMU 15 tons, 30 tons at reduced speed).
 - Use of 2 cables simultaneously.
 - Compatible with Ifremer ROV+
- New oceanographic crane (CMU 11 tons).
- Telescopic side beam upgrade (CMU 12 tons, static 30 tons).
- Coring system: new platform.

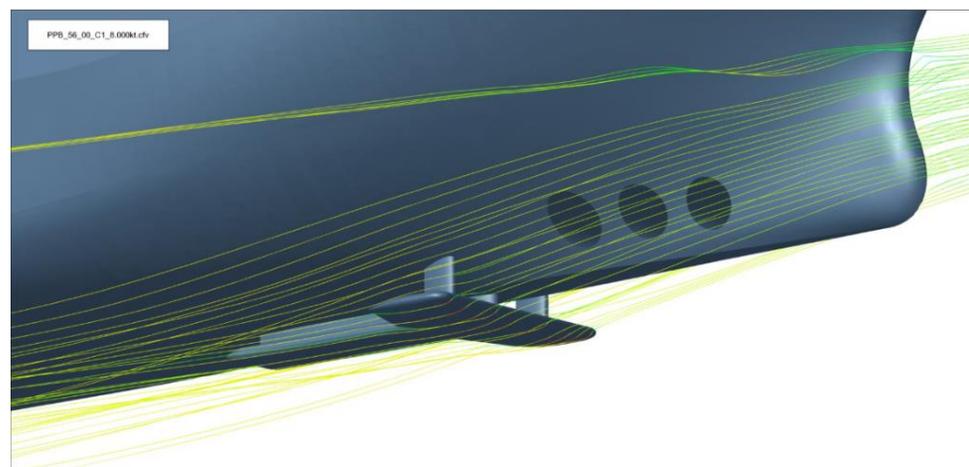
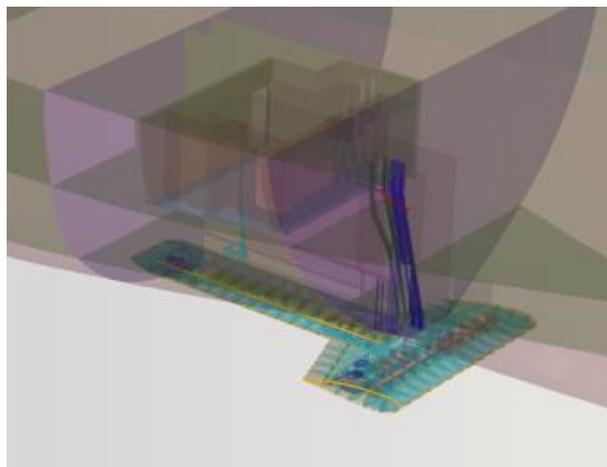
4. RV Pourquoi pas ? upgrade project

Scientific equipment

- New gondola with new / updated acoustic echosounders:
 - Multibeam: EM 124, EM 712
 - Splitbeam: EK 80 (18, 38, 70, 120, 200, 333 kHz).
 - ADCP: RDI OS 38, OS 75 + Kongsberg EC 150.
 - SBP IXBLUE Echoes 3500
- Other equipment: Phins, Posidonia, GPS, gravimeters...
- IT and communication equipment upgrade.
- New installations for meteorological measurement (2027).
- Physical measurement: Ferrybox, MVP300 (2027).

Accommodation

- Scientific control room rearrangement.
- Laboratories and sounder room refit.
- Bridge: operating panel upgrade.
- Meteorological laboratory rearrangement (2027).
- Cabins and restroom refit (2027).



5. New sensor installed onboard Ifremer vessels: ADCP EC150

EC150 Specifications

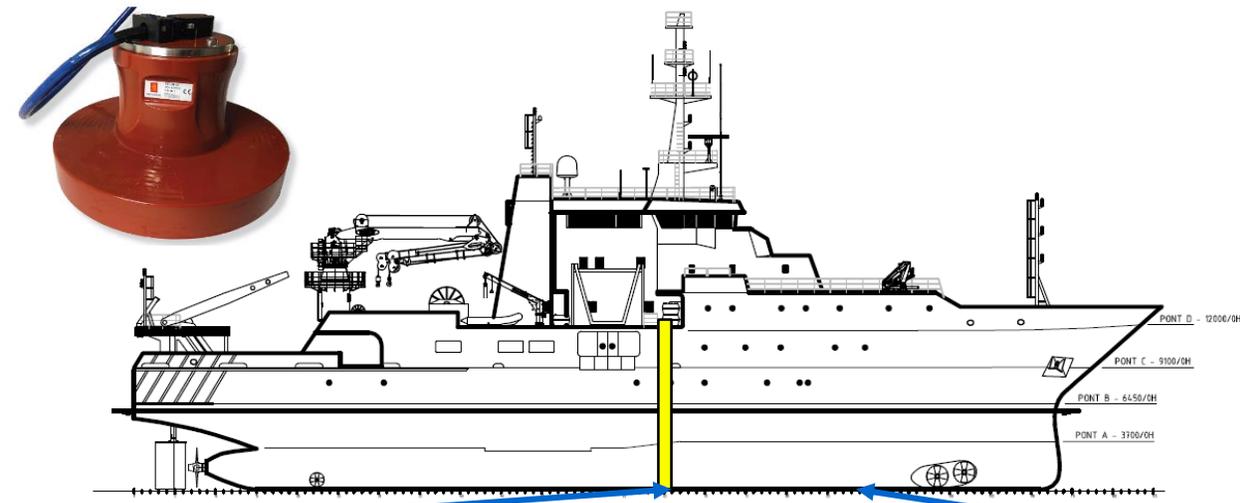
- Build on Simrad EK80 echosounder series
- Both an echosounder and an ADCP
- Frequency [130-170]kHz, CW and FM pulses
- Beam Geometry:
 - ADCP 4 beams $2,7^\circ$ @ 30° at 150kHz
 - Echosounder 1 splitbeam $2,4^\circ$ vertical at 150kHz
- Built in calibration in echosounder and ADCP mode

Performances

- Water column velocity data are very similar to RDI OS150.
- Improved resolution with EC150 (motion compensation)
- Vertical velocity available with EC150, though artefacts of motion compensation are still visible
- Maximum detection range (250m) is slightly lower with EC150 compared to OS150
- NetCdf file format available with EC150, decimation strategy needs to be defined since huge volume of data is acquired

Ifremer tests

- October 2019 (with Simrad engineers) and September 2020 (remote operation) on Thalassa vessel
- September 2022 on l'Atalante vessel with SHOM (French hydrographic office)
- Comparison with RDI OS150 on both vessels



Simrad – EC150

Mechanical integration in a TRAVOCEAN well
Flush mounting (without acoustic window).

RDI – OS150

Mechanical integration in a gondola.
Integration with freshwater and acoustic window

5. New sensor installed onboard Ifremer vessels: ADCP EC150

