OFEG – Tech 2018

IFREMER, Toulon, France

Dag Hellesnes, IMR

IMR and NIFES merged 01.01.2018

N I F E S

NATIONAL INSTITUTE OF NUTRITION AND SEAFOOD RESEARCH

NIFES does research on the seafood that we eat, and how it affects our health.

IMR
1000 employees

Kontor Trondheim

Kontor Oslo

IMR's vessels

”Dr Fridtjof Nansen”

http://newnansen.imr.no/

”Dr Fridtjof Nansen”

The vessel was delivered in Bergen early January 2017 and replace the now 24-year-old "Dr. Fridtjof Nansen“ which is back in Norway under the name “Kristine Bonnevie”.

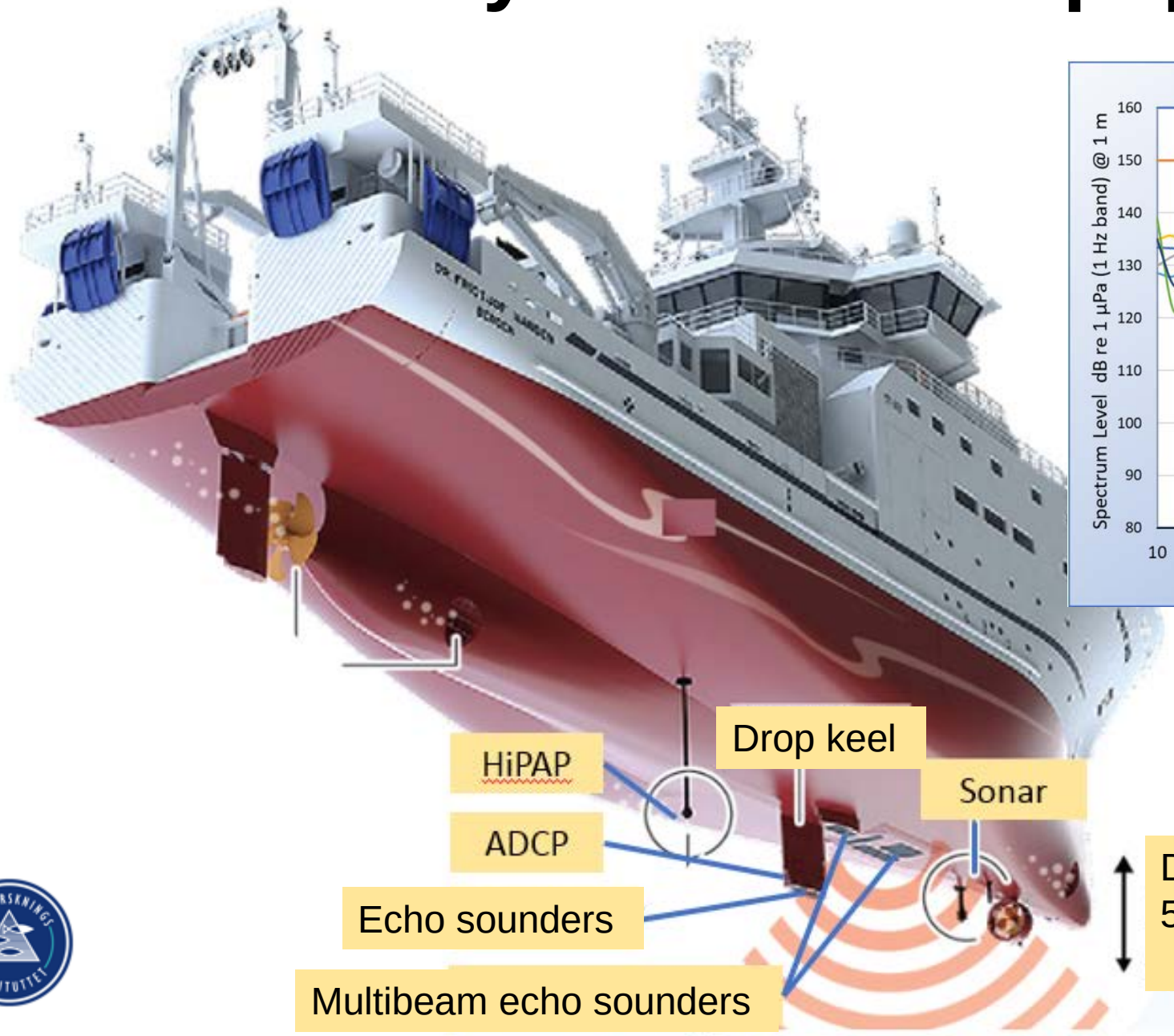
“Dr Fridtjof Nansen” will be a platform for collaborative marine research in developing countries. The project is in cooperation with FAO and Norad.

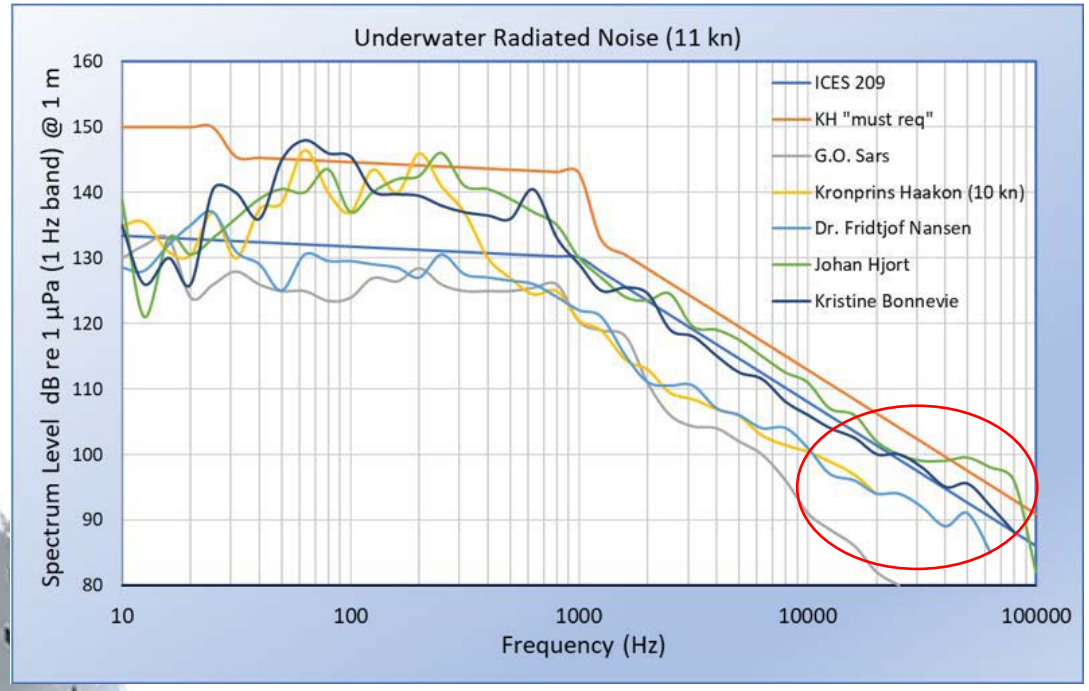
A successful test program was performed in the sea outside Bergen in January to April, and the first cruise started at Casablanca in May 2017.

In 2017 all cruises were pelagic fishery cruises along the west coast of Africa.

In 2018 “Dr. Fridtjof Nansen” will sail at East Africa and Indian Ocean to Bangladesh/Myanmar .

Hydroacustic equipment



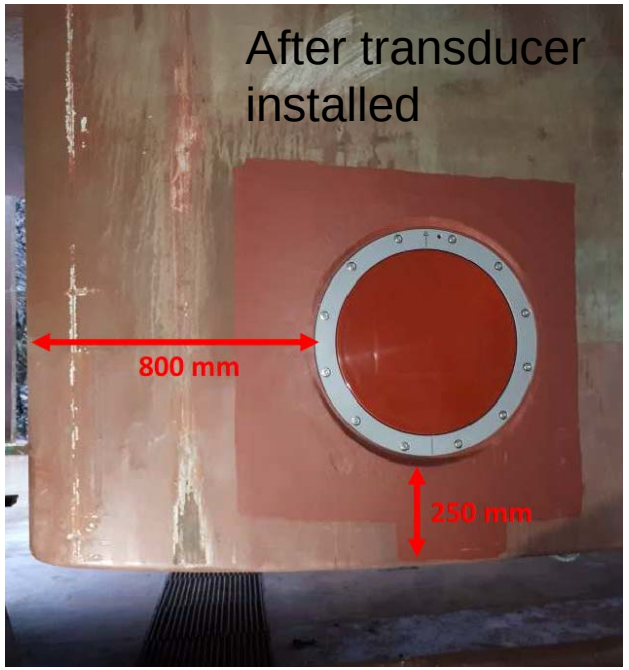


”Dr Fridtjof Nansen”

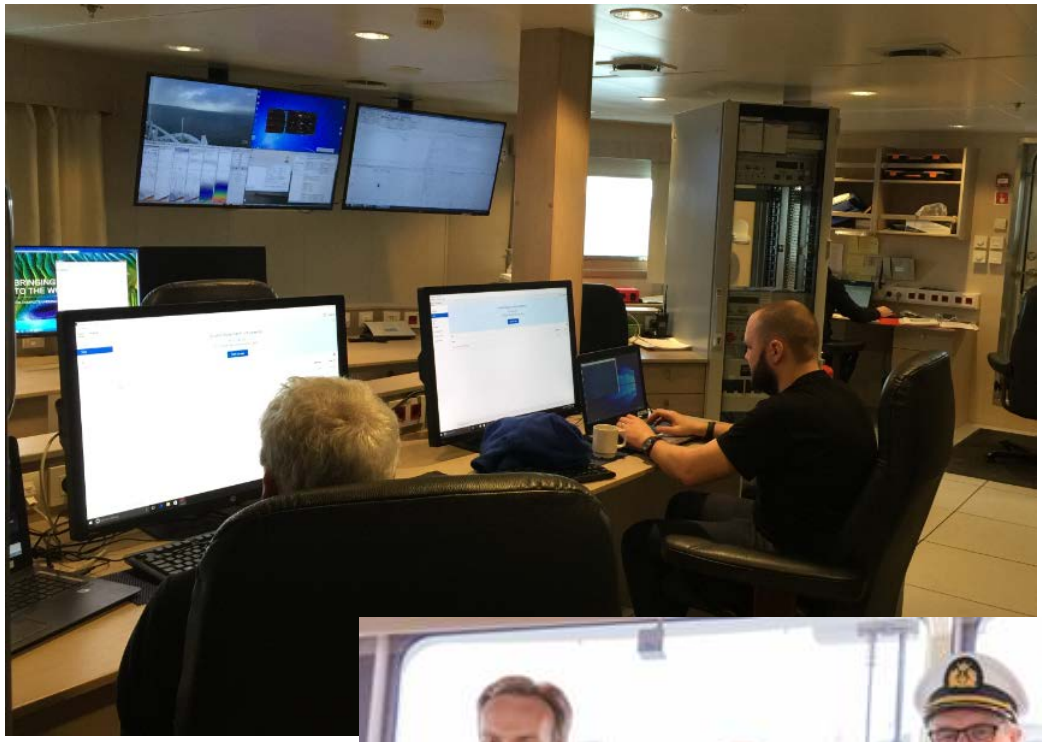
Installation of MS70 og ME70

ME 70 installation at port drop keel

MS 70 installation at port drop keel



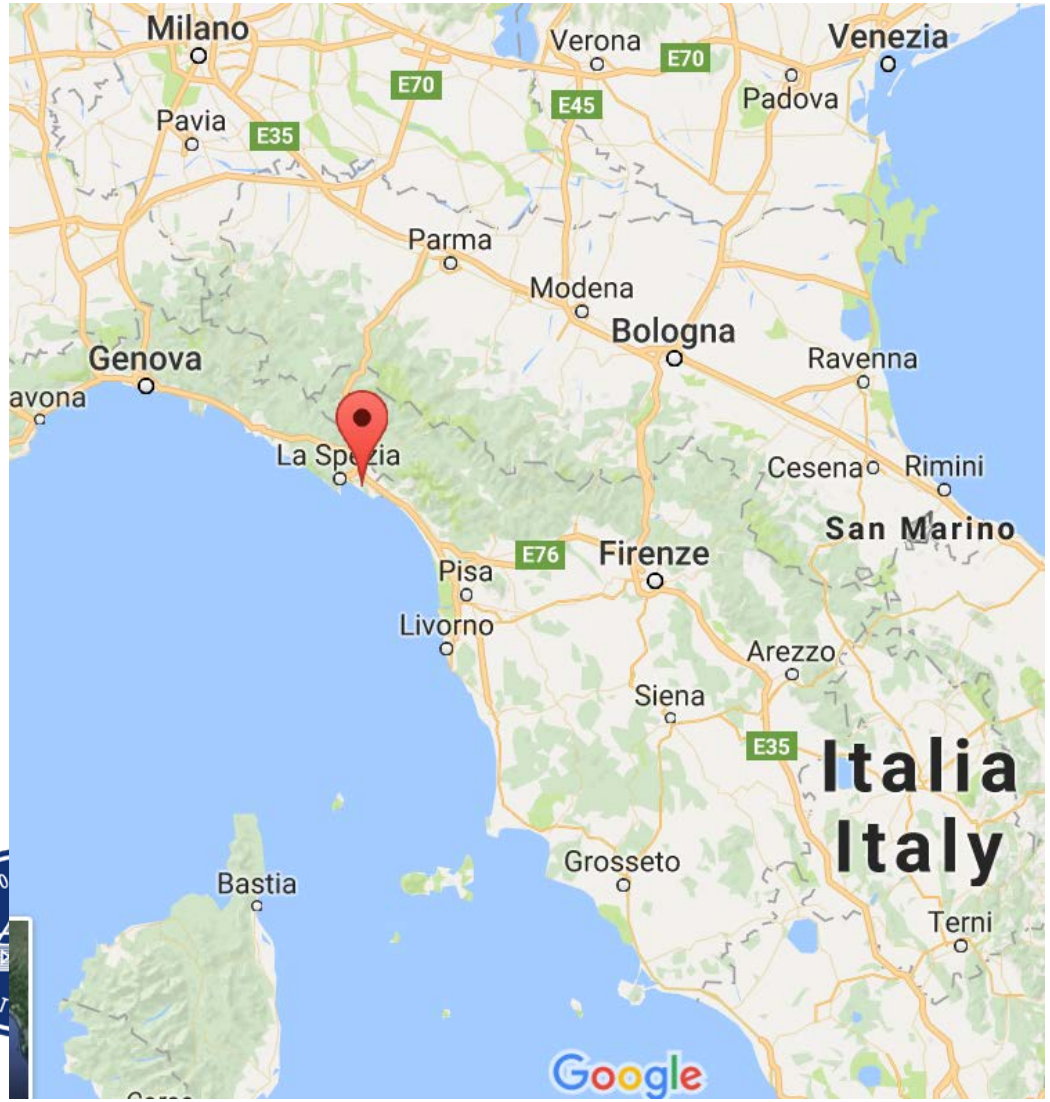
“Dr. Fridtjof Nansen” - pictures

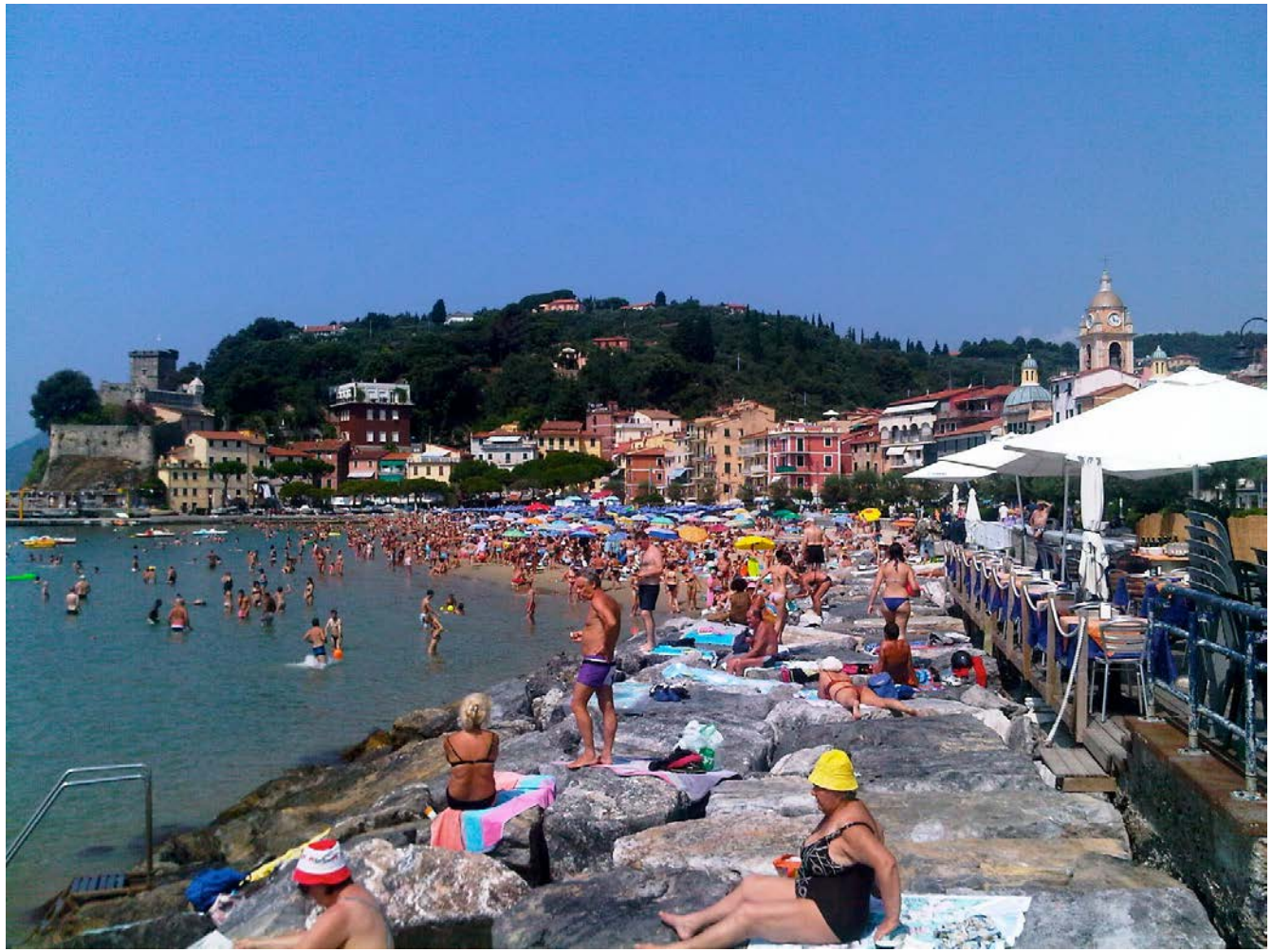


“Kronprins Haakon”


KRONPRINS HAAKON

Yard Fincantieri, Muggiano, Italiy

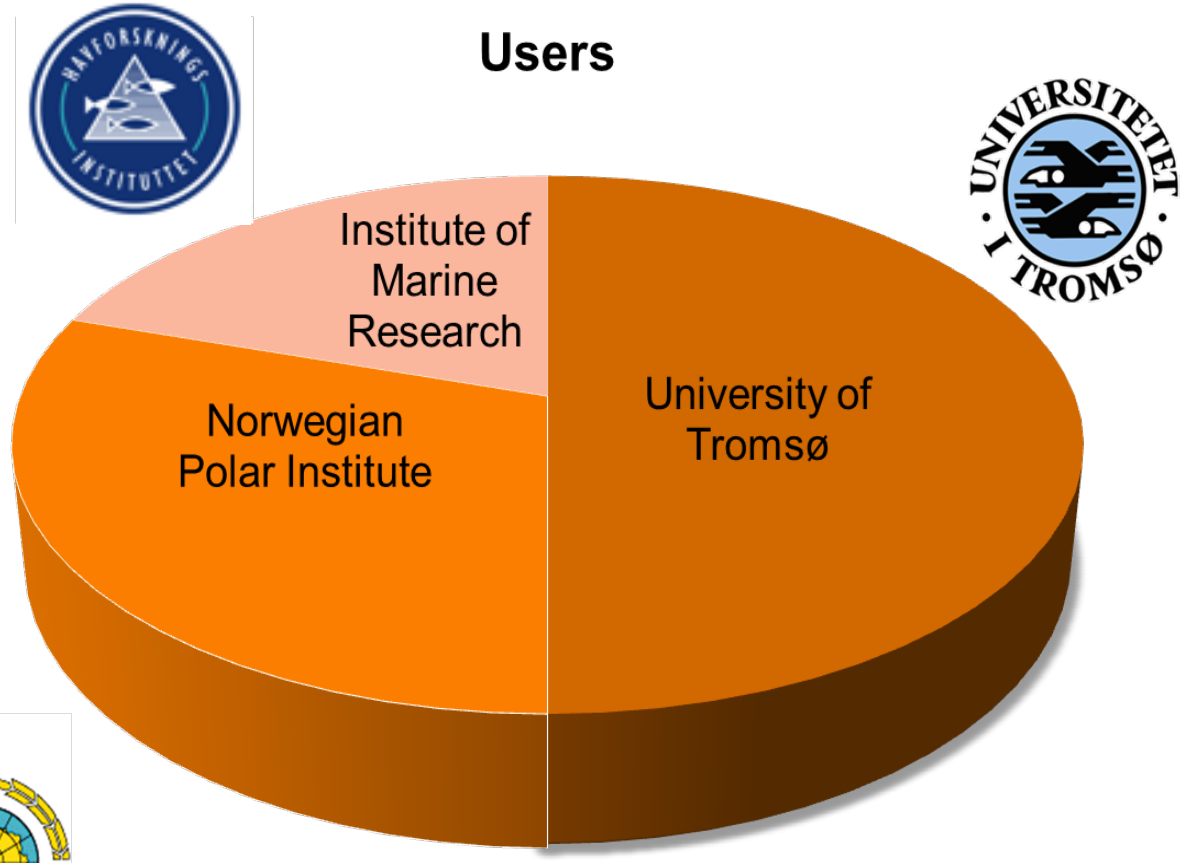




Technical details

- Length over all (LOA): 100,0m
- Width: 21,0m
- Draft: 8,5m
- Gross tonnage 10900T
- 4 diesel gensets (A/C) 15MW
- Two (Z-drives) aft11MW
- Two tunnel thrusters fwd 2,2MW
- Dynamic Positioning (DP 1)
- PC-3 *Year-round operation in second-year ice which may include multi-year ice inclusions.*

Owner and users of the vessel

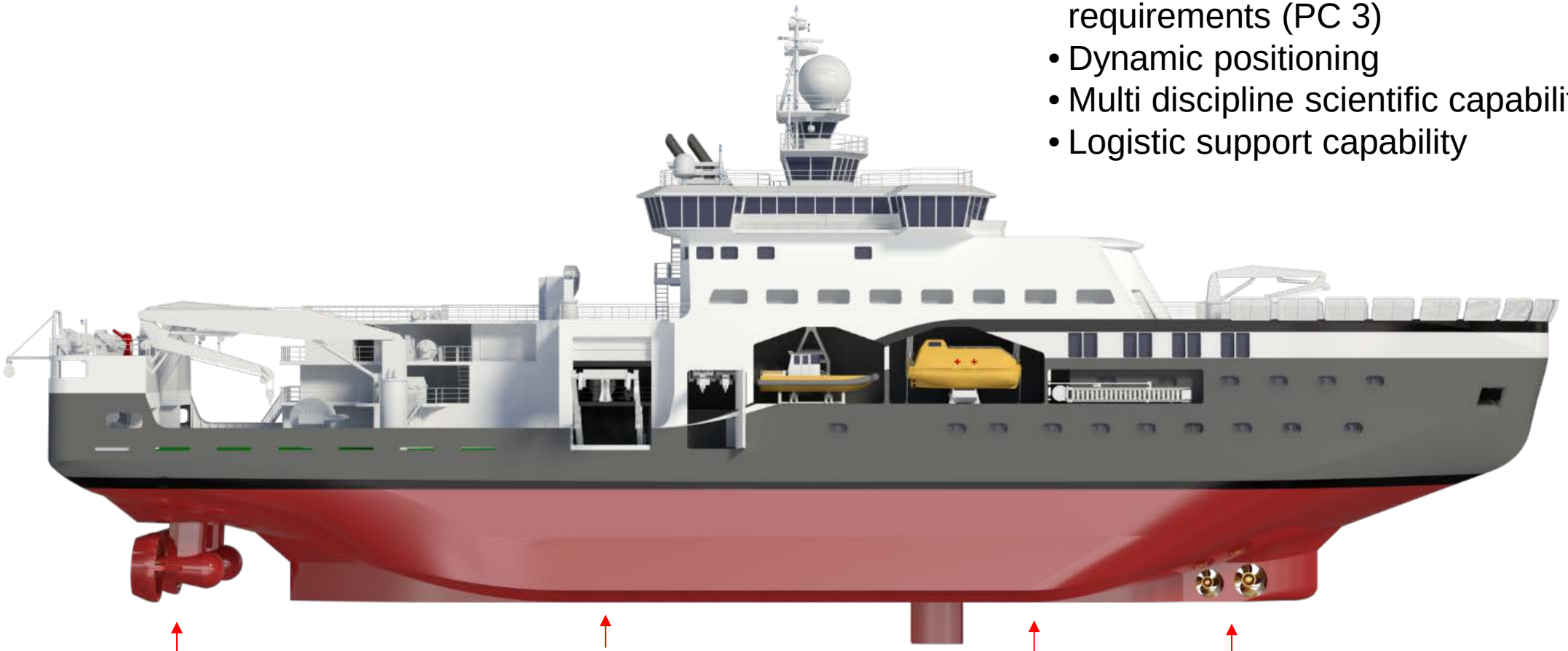


Owner:
NPI

Operator:
IMR

«Kronprins Haakon»

- Built to IMO Polar Code requirements (PC 3)
- Dynamic positioning
- Multi discipline scientific capability
- Logistic support capability



Azimuth propulsors with diesel-electric power

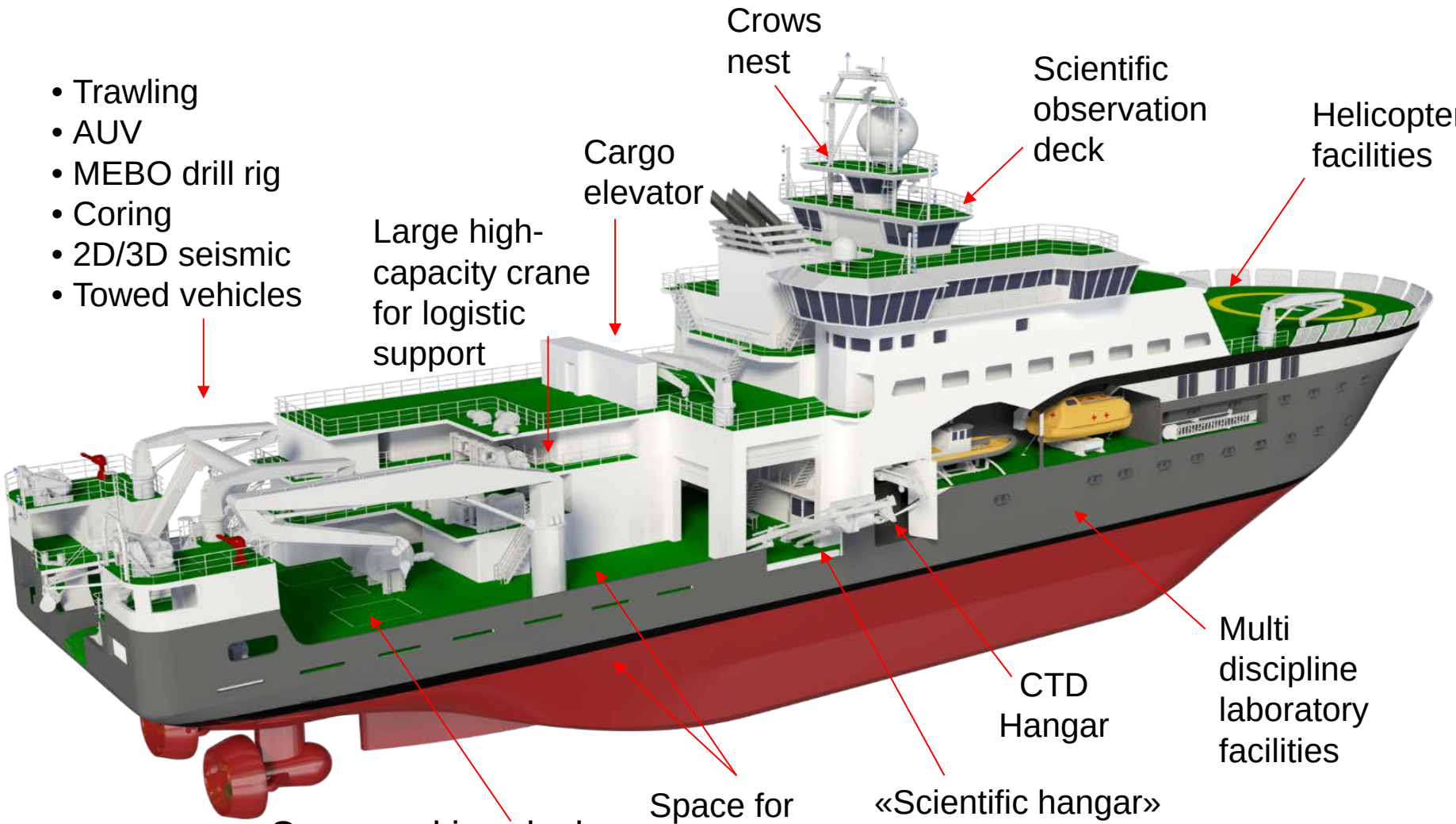
3x4m moonpool

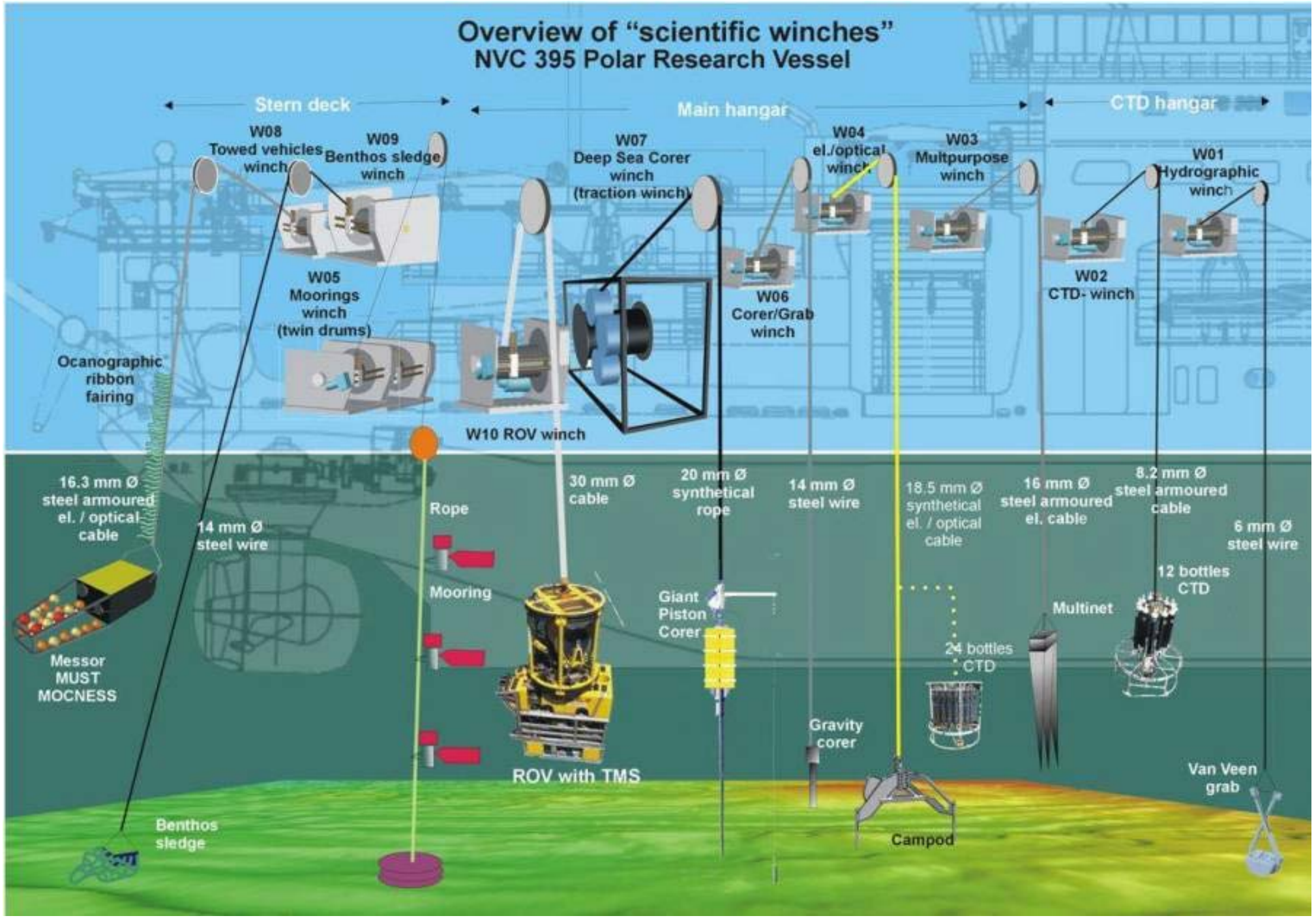
2 drop keels

Arctic window

Side thrusters/ dynamic positioning

«Kronprins Haakon»




Overview of "scientific winches"
NVC 395 Polar Research Vessel
Stern deck
Main hangar
CTD hangar
W08
Towed vehicles winch
W09
Benthos sledge winch
W07
Deep Sea Corer winch
(traction winch)
W04
el./optical winch
W03
Multpurpose winch
W01
Hydrographic winch
W05
Moorings winch
(twin drums)
W06
Corer/Grab winch
W02
CTD- winch
W10 ROV winch
Ocanographic ribbon fairing
16.3 mm Ø steel armoured el. / optical cable
14 mm Ø steel wire
Rope
Mooring
30 mm Ø cable
20 mm Ø synthetical rope
14 mm Ø steel wire
18.5 mm Ø synthetical el. / optical cable
16 mm Ø steel armoured el. cable
8.2 mm Ø steel armoured cable
6 mm Ø steel wire
12 bottles CTD
Multinet
24 bottles CTD
Giant Piston Corer
Gravity corer
Messor
MUST
MOCNESS
ROV with TMS
Benthos sledge
Campod
Van Veen grab

”Kronprins Haakon” status

- Sailed from Italy before Christmas and arrived Bergen at New Years eve.
- Now at Vard Langsten Yard in Norway – Fincantieri working on closing remarks and open defects, and due to that delivery is delayed.
- Naming ceremony to be moved.
- Test program planned to start beginning of January until end May is now delayed. So far ROV Ægir and Giant Piston Corer has been tested. Some issues with cursor system in hangar for ROV.
- First cruise that was planned 22nd May delayed.

More “Kronprins Haakon”

[“Kronprins Haakon presentation”]

"Kronprins Haakon" to Antarctica 2018-19

"Fram" expedition to Arctic in 1893-1896

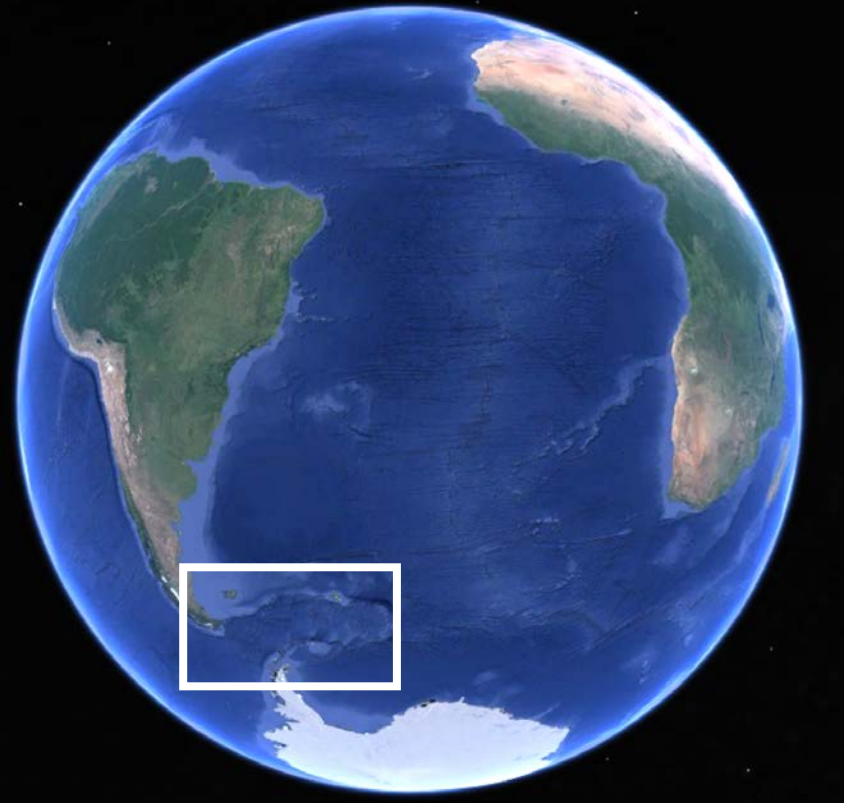
Conduct a research project in 2018/19 in Antarctica to collect data that can provide background knowledge and operational data for sustainable fishery of the Antarctic krill

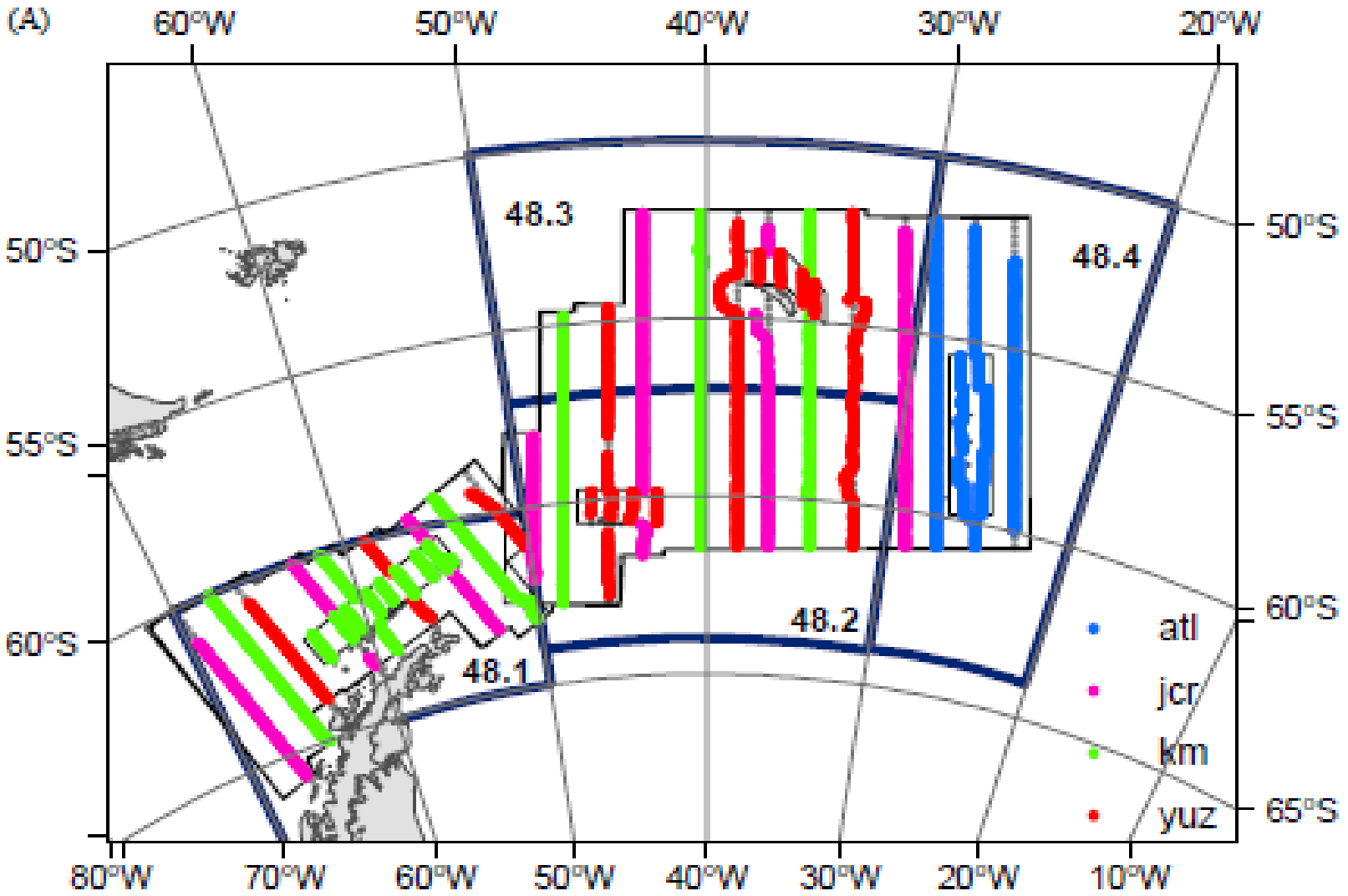
Antarctica expedition 2018-19

Preliminary cruises:

- **1. leg:** Bergen-Punta Arenas Transit: 5 November - 15 December: 40 days, IMR.
- **2. leg:** Punta Arenas - Punta Arenas: Cage project UiT, 17: December - 13. January - 28 days, UiT.
- **3. leg:** Punta Arenas- Punta Arenas. Krill : 16 January -1 March, 45 days, IMR.
- **4. leg:** Punta Arenas - Cape Town 4 March - 13 April: Ecosystem: 40 days, NPI.
- **5. leg:** Transit Cape Town - Bergen 13 April -12 Mai: 30 days, IMR

Area 48 – Krill biomass



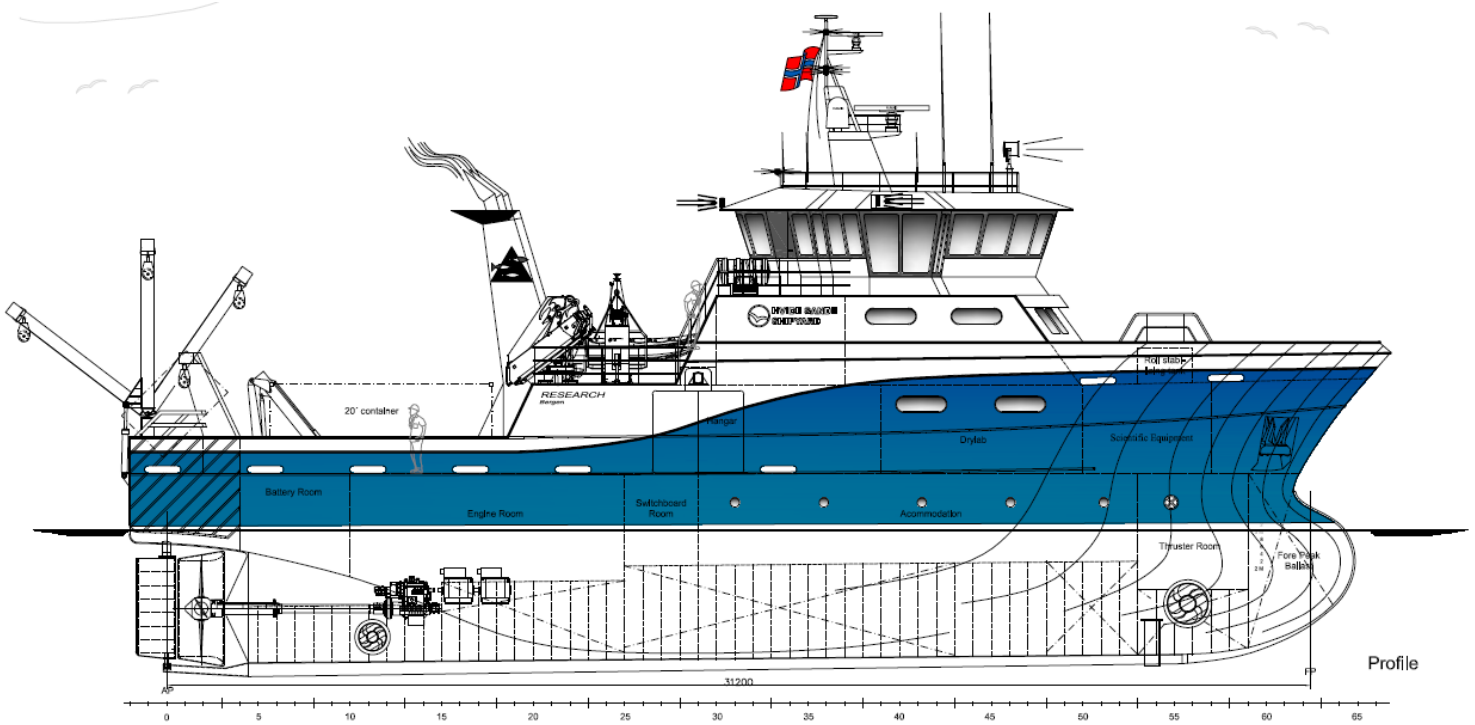







New vessel at IMR

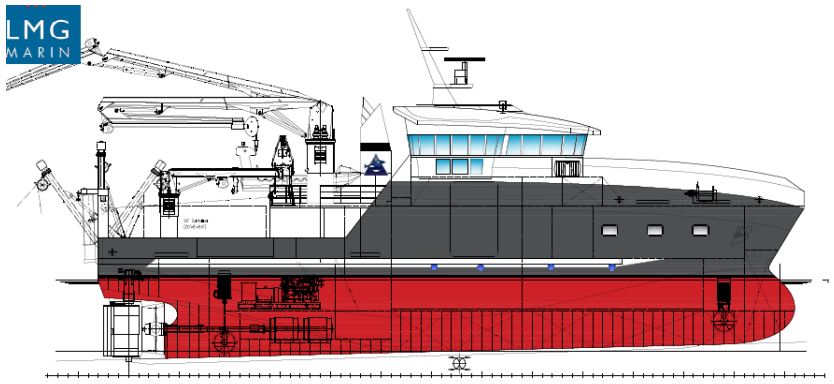
IMR has got 10 mill EUR in finance for a new costal vessel.
A small vessel around 35 meters of length and 10 meters width.
Specifications is phase is finished – ready for tender.

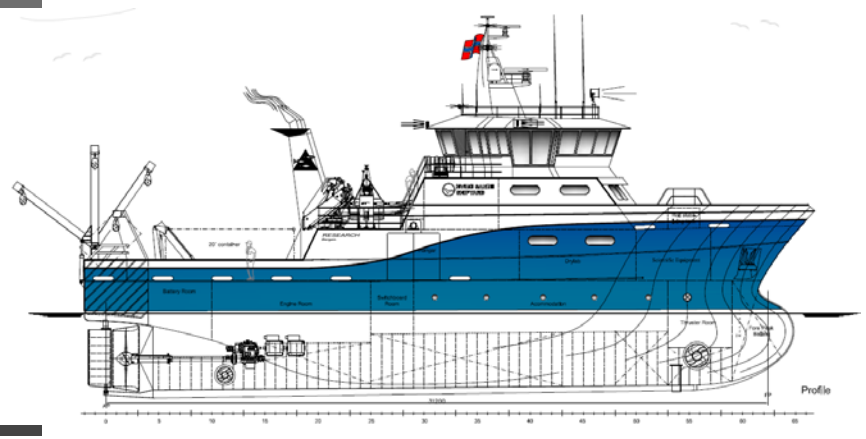


Nytt kystforskningsfartøy

Rederi fikk i 2017 tildelt 75 mill NOK til et nytt kystforskningsfartøy. De ble lyst ut anbud på dette i sommer, og det kom inn tre tilbud fra Baatbygg, Fitjar Mekaniske og Hvide Sande (dk). Tilbudene som kom inn varierte fra 85 til 130 mill NOK. Ønske å bygge fartøyet i Norge.

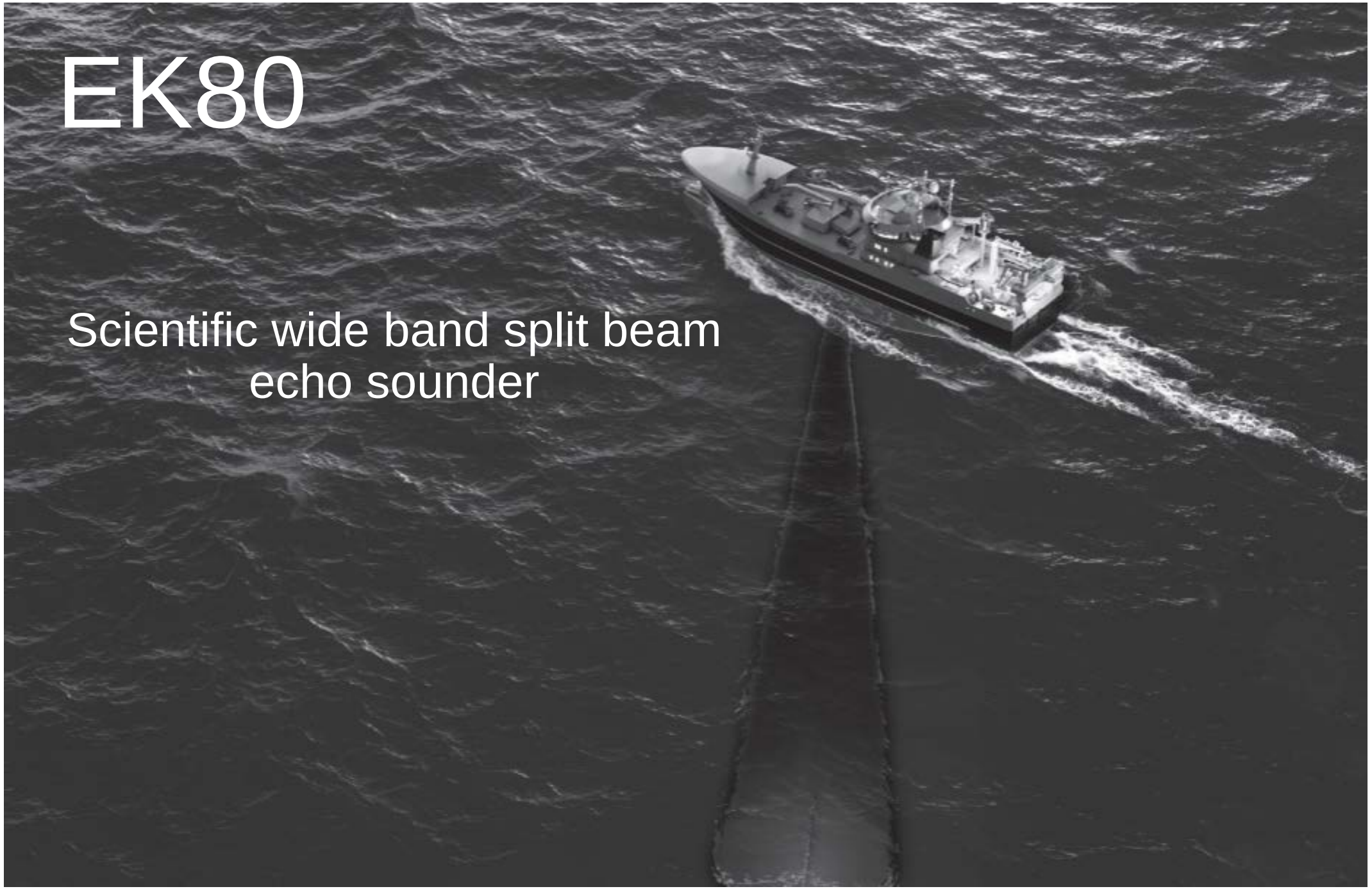
Ny justert spesifikasjon er laget og ny anbudsutlysning kommer over nyttår 2017.





EK80

Scientific wide band split beam
echo sounder

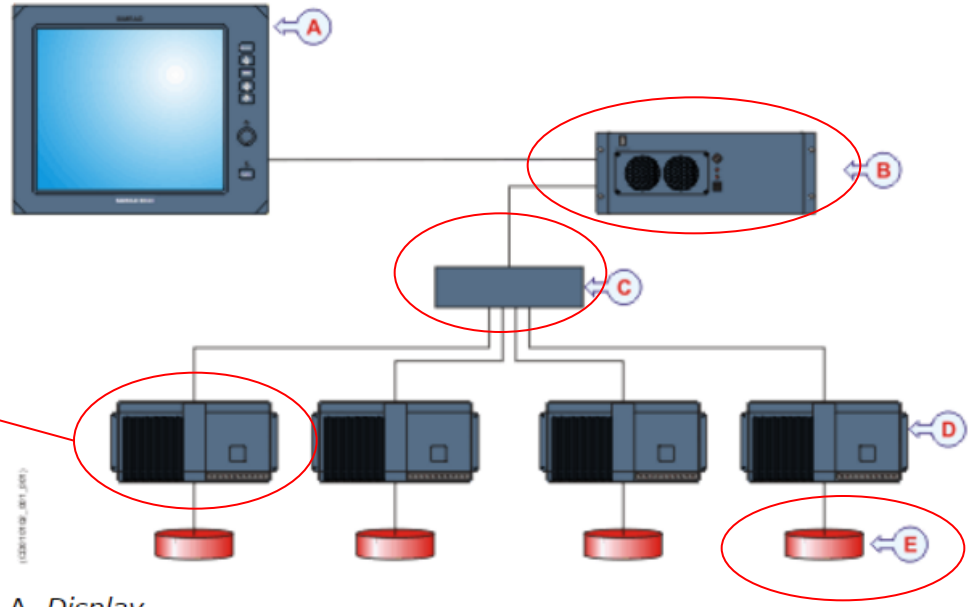


Simrad EK80

IMR has installed the new EK80 wide band echo sounders for fishery applications on all ocean-going vessels.

Wide band frequency sweep ("chirp") in combination with advanced signal processing gives an exceptionally good signal to noise ratio and range resolution

The new Wide Band Transceiver (WBT)



A. *Display*
B. *Processor Unit (computer)*
C. *Ethernet switch*
D. *Transceiver Unit (Wide Band Transceiver (WBT))*
E. *Transducer*

EK80 - data and network infrastructure

IT and server room

Nye akustikkdata – nye utfordringer (1)

Større datamengder:	2003	2016	2017	2018	2019
EK60	5G	5G			
EK80			250G	500G	1000G
SU90		25G	25G	25G	25G
MS70		35G	50G	50G	50G
ME70			25G	25G	25G
Per 24 timer	5G	**5G**	**250G**	**500G**	**1200G**

EK80 can be run in CW or FM mode, and the amount of collected data is many times higher than for the old EK60 system.

This adds extra cost on network components like servers, switches and other network components to handle in the range of 1TB data per. 24 hours.

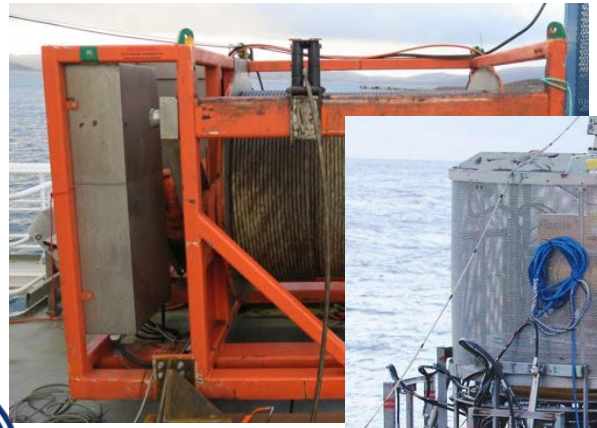
Compression of the raw data to be evaluated.

Observation platforms

ROV Ægir 6000

ROV Aglantha

AUV Hugin



VAMS **V**ideo **A**ssisted **M**ulti **S**ampler

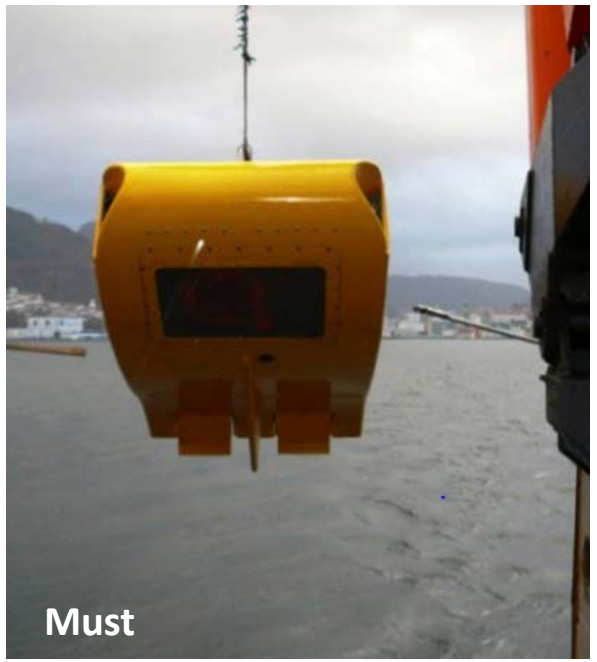
Chimaera

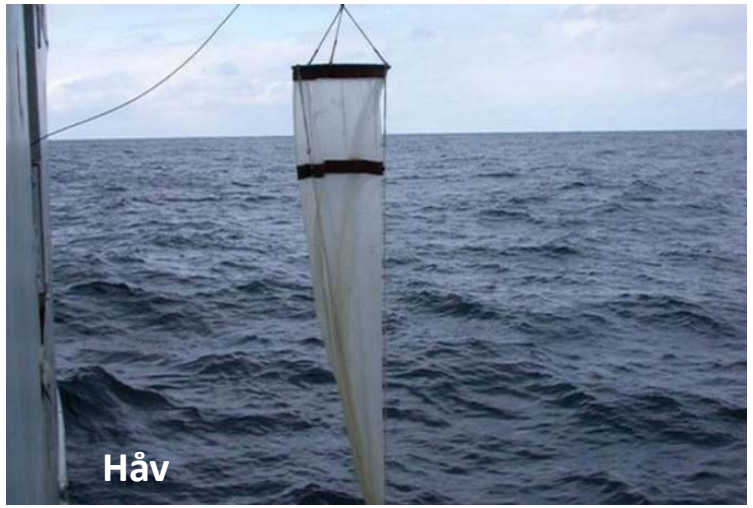
Campod

Plankton sampling equipment


Multinet


Mocness


Must


Håv


Messor

Sediment sampling equipment

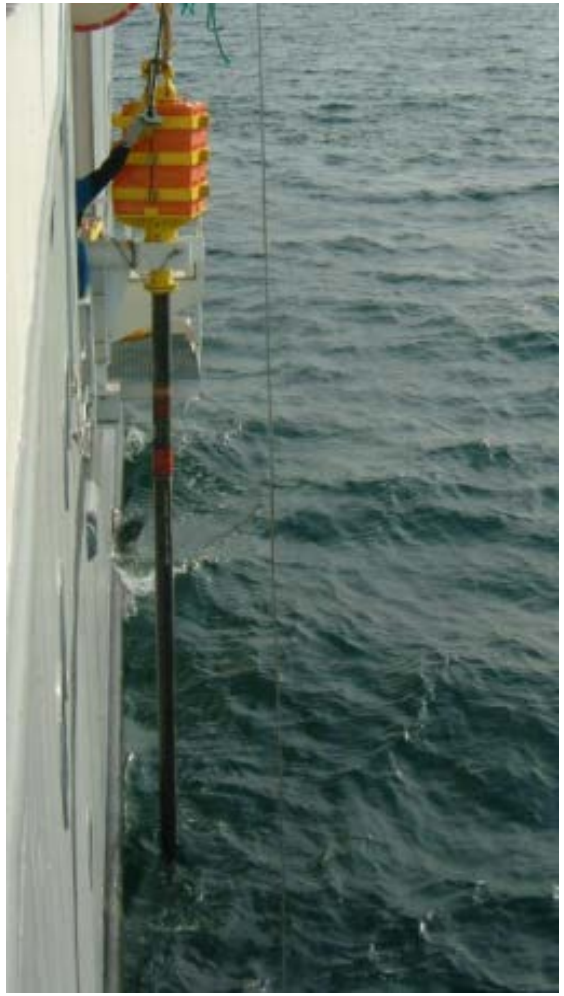
Giant piston corer
Calypso corer

Multi corer

Box corer

Gravity corer

Giant piston corer system “Calypso corer”



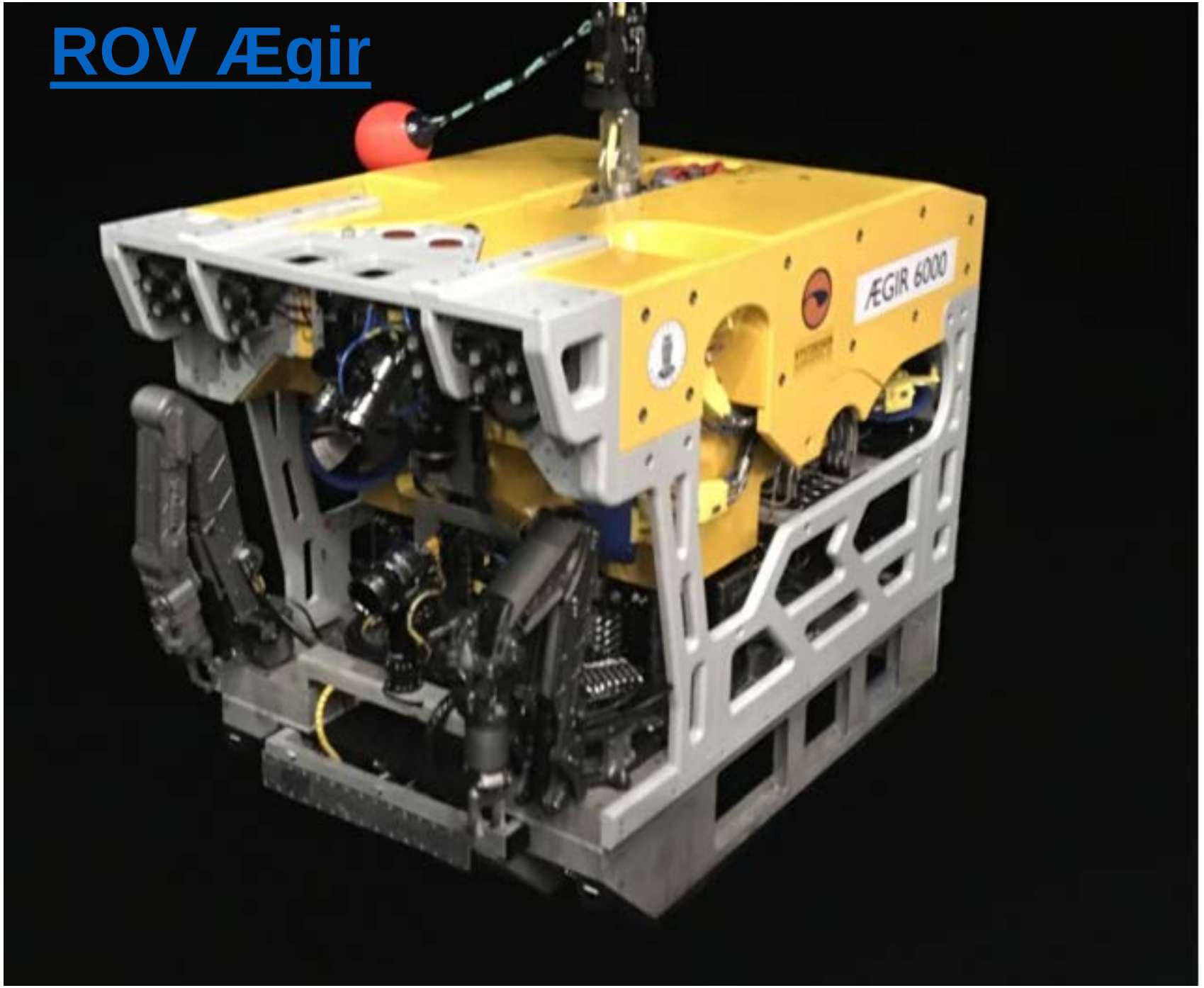
The system has this winter been tested on board “Kronprins Haakon”

The system from Kley France is from 2003 and a maine service was performed in 2016.

Main fixed items:

- Gearbox oil leakage
- Mechanical fixation of gear boxes and motors
- Cooling / flushing of gear boxes
- Overheating of electrical cabinet
- Spooler individual control (without realizing brake of storage drum)
- Regulation loop of traction winch drives
- Load cell
- Inboard sheave fixation and clearance
- HPU water protection

ROV Ægir



Small mobile winch (10’) for Ægir

Free flying winch
Serie no: SHG-000944

Measurements:
LxWxH – 2.990 x 2.440 x 2.600 meters

Power requirement:
3 phase 400 – 440 VAC/ 50/60 Hz. 120A

Weight:
9751 Kg with 1900m tether.

Small mobile winch (10’) for Ægir

Properties

- Replaceable drum (from 1900 to 6000 meters with tether)
- Weight: from 9,75 tons (with 2000 meters tether)
- Size: 10 ft container footprint
- Winch control integrated in ROV control system
- Easy and fast mobilization / demobilization of ROV system

Vessels

- G.O Sars (in hangar)
- Dr. Fridtjof Nansen (in hangar)
- Johan Hjort (on deck)

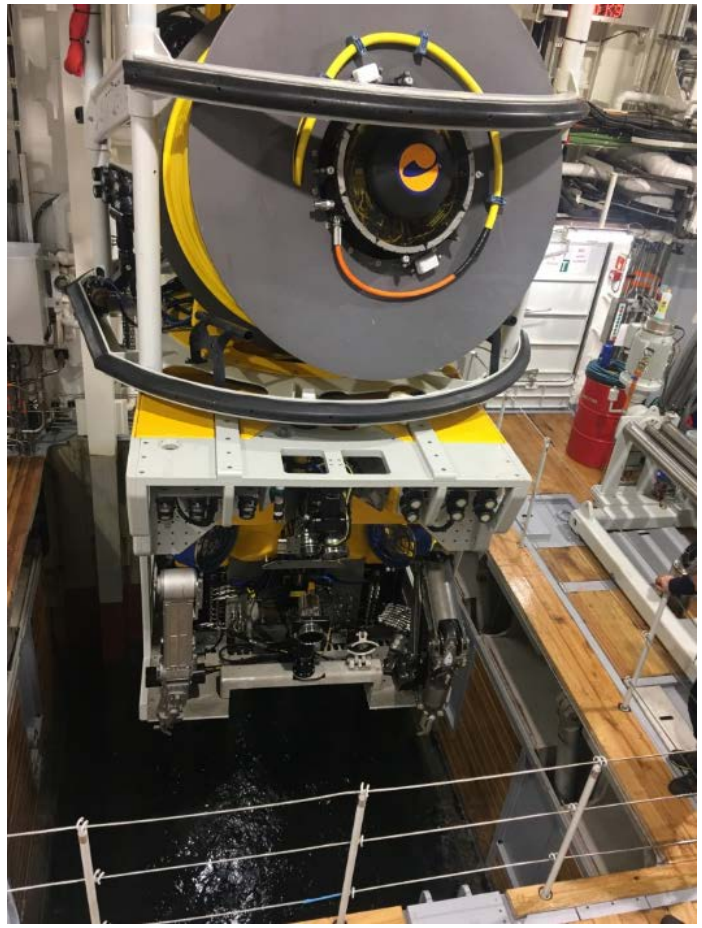
TMS ROV Ægir

Tether Management System

Properties

- Capacity 1000 meter teControl system integrated in ROV control system
- 2 additional down-looking Camera-arms with Imenco HD camera (”pan & tilt”) and lights
- TMS max depth: 6000 meters

Test of Ægir on board “Kronprins Haakon”



[Ægir system overview]

Thank you!